

Join the national conversation!



Word Generation - Unit 1.01

## Focus Words

analyze | factor | function | interpret | structure



## WEEKLY PASSAGE

Why do we go to school? Some people think the primary goal of education is giving knowledge to students. They feel there is specific information that all kids should know. For instance, they want kids to know what happened in the Revolutionary War and how the food chain works. Others **interpret** the main role of school as one of preparing students to earn a living. They are most concerned about students learning particular skills, such as reading, writing, and arithmetic.

Some argue that schools should introduce a set of shared values, including liberty and justice. They believe this will help students understand the **structure** of our democratic government. For example, they feel it is important for students to understand that while each of the three branches of government has a different function, the three work together to make sure we all enjoy certain freedoms and live by the same rules.

Some think schools should teach students to critically **analyze** what they see, hear, and read. They want students to be able to think carefully about different perspectives, to respect and challenge other viewpoints, and to form their own opinions about issues that affect them. Although many people say that they want kids to be able to think for themselves, students do not always have the freedom to do so in the classroom.

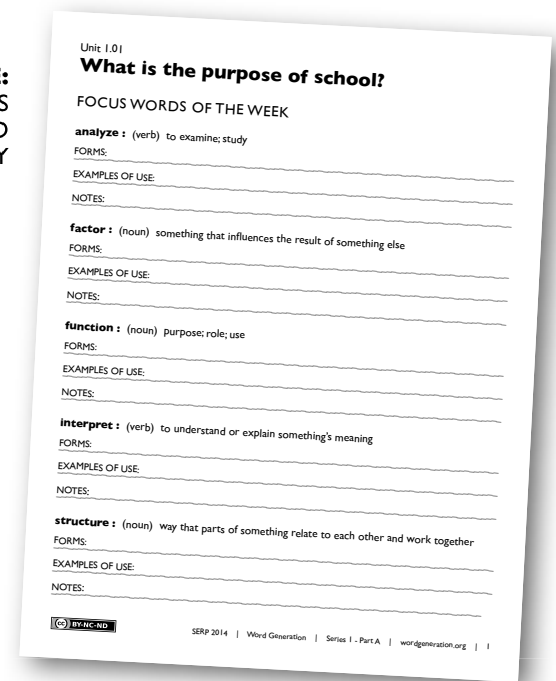
What do you think the **function** of school is? What do you consider the most important **factors** in providing a good education? Which ingredients are essential in your recipe for a good school?

### TEACHER

#### Discussion Questions:

- ▶ What are two different interpretations of the purpose of school?
- ▶ Which function of school do you think is the most important? Why?
- ▶ What is an example of a learning activity that teaches students to analyze something?
- ▶ What are some of the structures that help schools fulfill their function?
- ▶ What are some of the factors that teachers should consider when preparing a lesson for their students?

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## Unit 1.01

### WORD CHART FOR TEACHERS

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/Suffixes	
analyze	(v.) – to examine; study	analyzes analyzing analyzed	analysis	reanalyze analyzable analyzer analytic analytical analytically analyst	
factor	(n.) – something that influences the result of something else	factors (pl.) factor (v.) factors factoring factored		factorial	fact factory
function	(n.) – purpose; role; use	functions (pl.) function (v.) functions functioning functioned		dysfunctional functional functionally functor	
interpret	(v.) – to understand or explain something's meaning	interprets interpreting interpreted		reinterpret interpretable interpretation interpreter interpretative	
structure	(n.) – way that parts of something relate to each other and work together	structures (pl.) structure (v.) structures structuring structured		restructure structural	construct destruct instruct

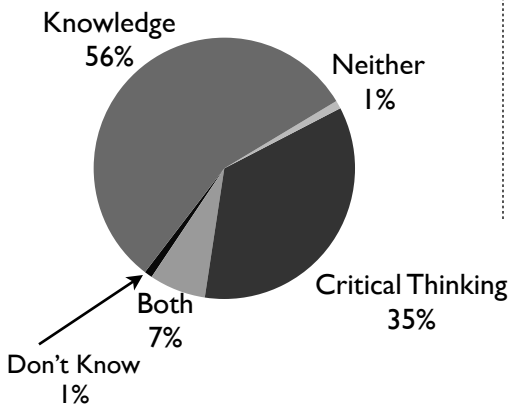
# What is the purpose of school?

## PROBLEM OF THE WEEK

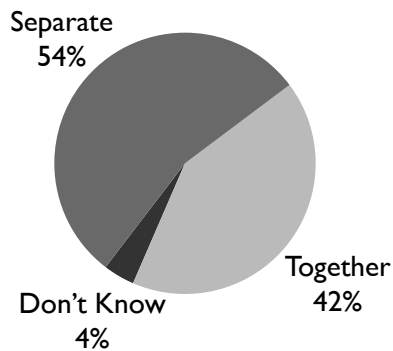


How do Americans view their public schools? **Analyze** the three graphs below. The information comes from a telephone survey taken in 1999.

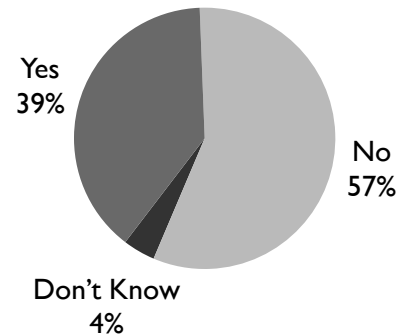
What is the proper **function** of American schools? Should they focus on giving students knowledge, or should they focus on teaching students to think critically?



What is the best class **structure** for elementary schools? Should top students, average students, and struggling students have separate classes, or should different ability levels be taught together?



Should standardized test scores be a **factor** in determining the level of funding a school receives?



**Option 1:** Which of the following is the best **interpretation** of the data shown in these three graphs?

- A) Americans disagree or are divided on major educational issues.
- B) Americans agree on major educational issues.
- C) Americans want all students to be equally well educated.
- D) Americans are disappointed with today's schools.

**Option 2:** Answer Option 1. Then determine:

What is the probability that a person responded YES to both questions: "Schools should focus on giving students knowledge," AND "Yes" to the question about making standardized test scores a factor in school funding?

Answer: The probability is  $.56 \times .39 = .2184$ , or a 21.84% chance

**Discussion Question:** Many teachers believe that classrooms **function** more effectively when students are actively involved. In social studies, students might present an **analysis** of U.S. foreign policy and our relationship to other countries. In Spanish class, students might **interpret** and act out a play written by a Colombian author. Students prepare and present, while the teacher acts as a guide. Is this kind of **structure** realistic for a math class? Or, when you're learning how to multiply or **factor** numbers, is having a teacher give knowledge by explaining the facts the best option?

## What Is the Purpose of School?

### THINKING SCIENTIFICALLY

The students in Ms. Kahn’s class are learning how to **analyze** substances according to their properties.

“One important property of a substance is its density,” says Ms. Kahn. “Can anyone tell me what density is?”

“Isn’t it sort of like how massive something is?” says Marian. “I mean, that’s not it exactly, but mass is an important **factor** in density... It’s hard to explain. Density is sort of how tightly mass is packed into something.”

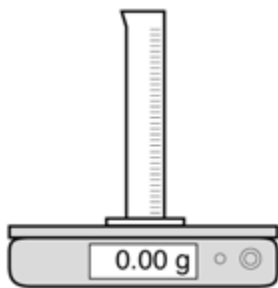
“Yeah,” Jamal adds, “density is how much mass a certain volume of something has. Say you have two things that are the same volume, but one has more mass. Then the one that’s the same size but more massive is more dense.”

“Right,” says Ms. Kahn. “Density is the ratio of mass to volume. We can write it as an equation, like this...” Ms. Kahn writes  $d = m/v$  on the board, then says, “Density equals mass divided by volume. Scientists often compare the density of different substances to water, because water has a density of exactly one gram per milliliter. But don’t take my word for it—see if you can figure out the density of water for yourselves.”

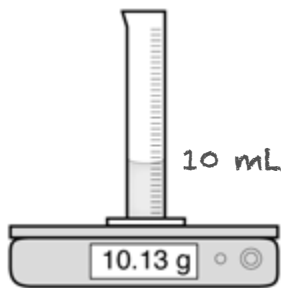
→ Marian and Jamal set out to check the density of water, but each **interprets** Ms. Kahn’s assignment differently.



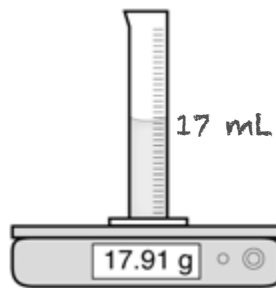
Marian puts a graduated cylinder marked off in milliliters on a scale and resets the scale to zero so that it will not count the mass of the cylinder.



Then Marian pours some water into the cylinder and records the volume and mass of the water.



Next, Marian adds some more water and records the volume and mass again.



Finally, Marian calculates the density of water based on her measurements.

$$10.13\text{g}/10\text{mL} = 1.013 \text{ g/mL}$$

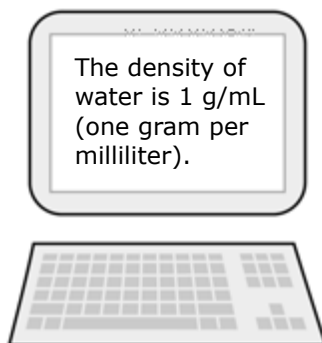
$$17.91\text{g}/17\text{mL} = 1.054 \text{ g/mL}$$

Take the average of the two measurements:

$$(1.013 + 1.054) \div 2 = 1.034.$$

So the density of water is about 1.034 g/mL

Meanwhile, Jamal goes online and finds the following information on three reliable web sites:



#### TURN AND TALK:

Which student do you think got the most accurate answer, Marian or Jamal?

Jamal’s answer is more accurate. (In fact, a gram was originally defined as the mass of one mL of water.)

Which student do you think demonstrated the clearest understanding of how science **functions**, Marian or Jamal? Why?

Marian used a scientific, experimental approach to answer the question. She showed more scientific thinking. (In a situation where an answer can’t simply be looked up, she might be better prepared to find something out for herself.)

What might be some reasons for the difference in their answers?

Marian could have made errors in her calculations, but in this case, it looks like she didn’t. So she must have made slight errors in measurement. Her basic approach makes sense, though.

# What is the purpose of school?



## DEBATING THE ISSUE

# Get ready...

Pick one of these positions (or create your own).

**A** The primary function of school is to prepare students for the work force. Therefore, knowing what jobs students expect to have is an important factor in determining what they need to know and to be able to do.

**B** The primary function of school is to teach students how to think for themselves. Therefore, they should spend time in class learning how to learn, analyzing different perspectives, and defending their own positions.

**C** The primary function of school is to prepare students for democratic citizenship. Therefore, students should learn how to actively participate in the structures of society and government that help to ensure life, liberty, and the pursuit of happiness.

**D** The primary function of school is to make sure that all students have specific knowledge about history, science, literature, and mathematics. Therefore, students should spend more time learning accepted facts than making their own interpretations.

**E** \_\_\_\_\_  
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**TEACHER**  
Whatever the debate format, ask students to use academically productive talk when arguing their positions. In particular, students should provide reasons and evidence to back up their assertions. It may be helpful to read these sample positions to illustrate some possibilities, but students should be encouraged to take their own positions about the issue at hand.

# Get set...

Be ready to provide evidence to back up your position during your class discussion or debate. Jot down a few quick notes:

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# GO!

Be a strong participant by using phrases like these.

*I believe that...*

*I agree with you because...*

*Can you show me evidence in the text that supports what you said?*

*You make a good point, but have you considered...*



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# WHERE ARE THE WOMEN IN MATH AND SCIENCE?

Word Generation - Unit 1.02

## Focus Words

context | indicate | variable | create | benefit



## WEEKLY PASSAGE

The former president of Harvard University upset many people when he explained why he thought there were fewer women than men in math and science jobs. He suggested that women may have less natural talent in these areas. He also argued that women spend more time with their families and fewer hours at their jobs than men do.

Why are women who enter careers in science and math more likely to leave than men? Many people argue that ability and family commitment have nothing to do with it. They think that the educational **context** in which students learn math and science plays an important role. For example, women in science, math, and engineering programs reported on a survey that their professors favored male students and preferred men's learning styles. Other studies show that in a typical science or math classroom, teachers call on male students more often.

Research **indicates** that men also respond to questions more confidently, quickly, and

aggressively. Women say that, if called on at all, they are interrupted more often than men. Might social conditions like these **create** a context that drives women away from careers in the math and science fields? Some think that the most important **variable** affecting math performance is expectations. Both girls and boys **benefit** from teachers who believe in their math abilities and expect them to do well.

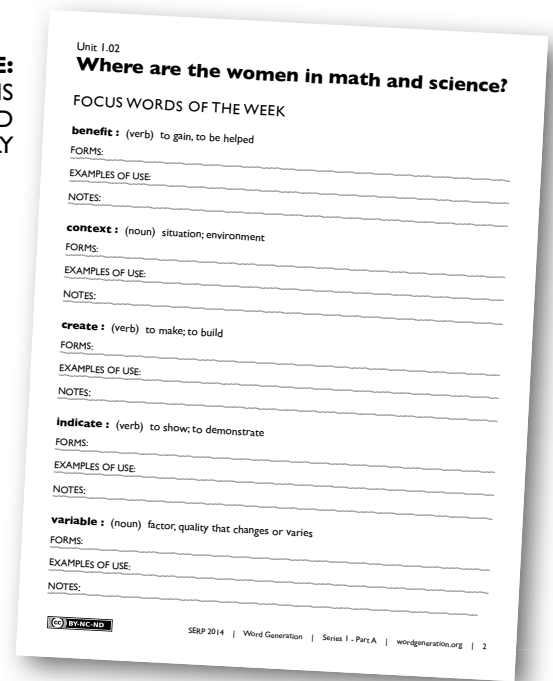
Why do you think there are more male scientists and engineers than female? Should something be done to promote gender equality in these fields? If so, what?

### TEACHER

#### Discussion Questions:

- ▶ What reasons did the president of Harvard University indicate as possible explanations why there are fewer women in math and science jobs? How did people react?
- ▶ What sometimes happens in the context of math and science classrooms to encourage boys and discourage girls?
- ▶ How might parent and teacher expectations benefit both girls and boys in math and science classes?
- ▶ What are some of the variables that might affect whether or not girls pursue careers in science?

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## Unit 1.02

### WORD CHART FOR TEACHERS

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/Suffixes	
benefit	(v.) – to gain, to be helped	benefits benefiting benefited benefit (n.)		beneficial unbeneficial beneficent benefactor	
context	(n.) – situation; environment	contexts (pl.)		contextual contextualize recontextualize decontextualize	text
create	(v.) – to make; to build	creates creating created		creation recreate creator creative creativity	
indicate	(v.) – to show; to demonstrate	indicates indicating indicated		indicative indication index indicant indicatory contraindicate	predicate
variable	(n.) – factor, quality that changes or varies	variables (pl.)	vary	invariably variable (adj.) variability variably	variant variation variety invariant



# Where are the women in math and science?



## PROBLEM OF THE WEEK

**Option 1:** Different students learn better in different educational **contexts**. One **variable** that affects the educational context is a teacher's gender. Some studies say female students **benefit** from having female teachers. However, in middle schools and high schools, many math and science teachers are male. In colleges, many math and science departments are made up of mostly male professors. For example, only 2 of the 26 senior professors in the Harvard University math department are women.

**Part 1:** What fraction of Harvard's senior math professors are women? **Indicate** your answer below.

A)  $3/13$

B)  $2/13$

C)  $1/13$

D)  $3/26$

**Part 2:** There are many fractions equal to the fraction you chose in Option 1. **Create** a list of these fractions. Could a larger department with many more professors have an equal fraction of women?

Answer: Yes

**Option 2:** If math and science departments hire more female teachers, will these traditionally male **contexts** become more supportive of female students? Or are the **benefits** unclear? This is a complicated question about social relationships in education. Mathematically, we know that the percentage of women in any group depends partly on the number of women, and partly on the number of men. For example, a math department with two women and two men would be 50% female, while a math department with two women and eight men would be 20% female.

**Create** an algebraic equation that **indicates** the relationship between the number of women in a group, the number of men in the group, and the percentage of women in the group. Use the following three **variables**: Let  $w$  = the number of women in a group,  $m$  = the number of men in the group, and  $p$  = the percentage of women in the group.

Answer: 
$$\frac{w}{w + m} = p$$

**Discussion Question:** Lawrence Summers, the former president of Harvard University, suggested that math and science ability is partly determined by natural talent. A few studies have **indicated** that, while most men and women have equal math and science talent, men are more **variable** – they are more likely to be very bad or very good in these areas. Summers said he suspected that, based on natural talent, the top scientists and mathematicians would always be men. Later, he said his remarks were taken out of **context**. He said he supported the **creation** of special **benefits** to encourage women in math and science. He was just, he said, posing good scientific questions. What do you think about these remarks? Is it okay for a university president to suggest that most of the best scientists and mathematicians will always be men? Why or why not?

## Where Are the Women in Science and Math?



### THINKING SCIENTIFICALLY

Ms. Kahn enters the teachers' lounge looking troubled. "What's wrong?" asks Mr. Seemy.

"I just read a disturbing study," says Ms. Kahn. "Some scientists at Yale **created** a test to find out if science professors are biased against their female students. The researchers went to biology, chemistry, and physics professors at six major universities around the country and asked them to evaluate a made-up student's application for the job of laboratory manager. They didn't know the student wasn't real. They were asked to rate competence, hireability, and likeability. All these things were measured on a scale from 1 to 7. They were also asked to suggest a starting salary. Here's the twist: all the applications were identical except that some had the name 'John' and some had the name 'Jennifer.'"

"Okay," says Mr. Seemy, "so the names indicated different genders, and that was the only **variable** that changed on the fictitious applications?"

"Exactly," says Ms. Kahn. "None of the professors saw the applications for both John and Jennifer, so in the **context** of this study you can't say a particular professor is biased. But when you look at the data all together, it **indicates** a significant overall bias against the female applicant."

"That is disturbing," says Mr. Seemy.

"Yes," says Ms. Kahn. "But there are some more details in the data that I find especially surprising and disturbing. It makes me want to stop and consider how I look at my own students. Am I as free of bias myself as I think? We can probably all **benefit** from a little self-examination! Here, take a look at the data."

→ Ms. Kahn shares the following information with Mr. Seemy. This data is taken from the article, "Science faculty's subtle gender biases favor male students," by Corinne A. Moss-Racusin et al, published in the Proceedings of the National Academy of Sciences of the United States of America, October 9, 2012, vol. 109, no. 41. (Accessed April 3, 2014: <http://www.pnas.org/content/109/41/16474.full.pdf+html>)

	"John"		"Jennifer"	
	Male professors	Female professors	Male professors	Female professors
Competence	4.01	4.1	3.33	3.32
Hireability	3.74	3.92	2.96	2.84
Salary	\$30,520.83	\$29,333.33	\$27,111.11	\$25,000.00
Likeability*	3.91		4.35	

\*Not broken down by professors' gender.

Based on the data presented in the table above, does there appear to be a bias against female students in science? What evidence supports your claim?

Yes, the data show a bias against female students. On average, professors rated "Jennifer" lower in all categories except likeability.

Do the data show that female professors are generally free of bias against female students? Please explain.

Female professors share the bias against female students. If anything, their bias appears slightly stronger.

How would you interpret the data in the table? Does anything about the data surprise you? What do you think the data in the table say about social structures and cultural beliefs?

The bias against female students on competence, hireability, and recommended salary occurs in spite of the fact that professors seem to find the female students more likeable. So the bias seems not to result from conscious hostility. In a way, this inconsistency might make bias more insidious: professors may be blinded to their practical bias against female students by their own positive personal feelings about those very students.

# Where are the women in math and science?



Why are there fewer women than men in these fields?

## DEBATING THE ISSUE

# Get ready...

Pick one of these positions (or create your own).

**A** The most important variable affecting whether someone goes into a career in math or science is interest, and boys are generally more interested in these subjects than girls.

**B** There are fewer women than men in math and science careers because girls do not have the benefit of high expectations and encouragement from teachers that boys have.

**C** The way girls are treated in math and science classes helps to create a context that discourages girls from pursuing scientific careers.

**D** There are fewer women than men in science and engineering careers because the way these subjects are taught does not highlight how using math can benefit people, which is something that girls often indicate is important to them.

**E** \_\_\_\_\_  
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Whatever the debate format, ask students to use academically productive talk when arguing their positions. In particular, students should provide reasons and evidence to back up their assertions. It may be helpful to read these sample positions to illustrate some possibilities, but students should be encouraged to take their own positions about the issue at hand.

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Word Generation - Unit 1.03

## Focus Words

complexity | culture | element | resourceful | tradition



## WEEKLY PASSAGE

Does America have its own **culture**? Many foods, customs, **traditions**, values, fashions, musical and artistic styles, and other aspects of everyday American life have origins in other cultures. Some people believe that the unique combination of **elements** from other cultures defines American culture. For example, celebrating Thanksgiving, playing jazz music, and wearing jeans are shared American traditions with roots in other cultures. Others argue that there is really no such thing as American culture. They observe that people from different cultural backgrounds often live in segregated communities in the U.S. with their own traditional meals, music, holidays, and other customs.

But do these separate groups have anything in common? Some say that Americans are typically materialistic. Are people in the U.S. more interested in spending money and buying things than in spending time with family and learning about their heritage? Is materialism – a desire to own more things – a shared American value? Other people

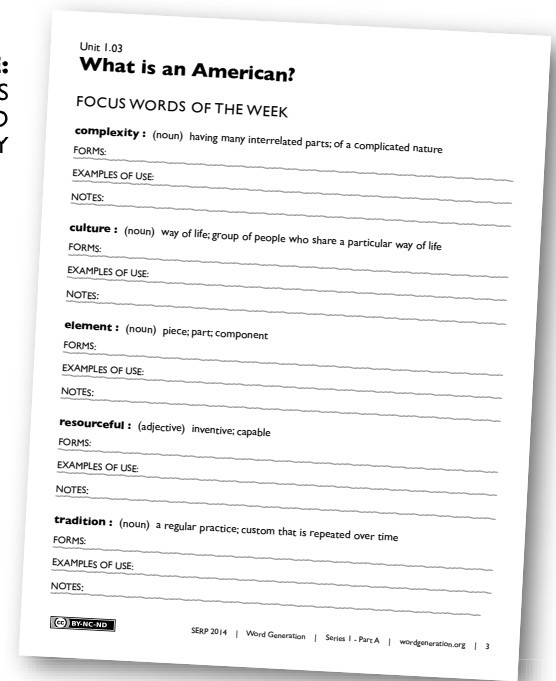
view Americans as especially **resourceful**. Are people in the U.S. better than others at making do, and improving their lives? Perhaps resourcefulness is why Americans are traditionally good at taking advantage of what different ethnic groups have to offer. Does the success of the American fast food industry indicate materialism or resourcefulness? Does Taco Bell represent American culture? What about baseball, hip-hop, Nintendo, or Hollywood? Is America a “melting pot” with its own unique flavor, or a “salad bowl” made up of lots of different tastes? Might it be the **complexity** of America’s cultural history that sets it apart from other nations? What do you think?

### TEACHER

#### Discussion Questions:

- ▶ What are some examples of traditions that are uniquely American?
- ▶ What are some elements of American culture that originate in other cultures?
- ▶ What are some values that might be considered typically American?
- ▶ Does culture divide people or bring them together?
- ▶ What makes American culture complex?

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## Unit 1.03

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complexity	(n.) – having many interrelated parts; not being simple	complexities (pl.)	complex (adj.) complex (n.)	complicate	multiplex
culture	(n.) – way of life; group of people who share a particular way of life	cultures (pl.) cultured (adj.)		monocultural bicultural culturally cultural	cult cultivate occult
element	(n.) – piece; part; component	elements (pl.)		elemental elementary	
resourceful	(adj.) – inventive; capable		resource	resources (pl.) resourcefully resourcefulness	
tradition	(n.) – a regular practice; custom that is repeated over time	traditions (pl.)		untraditional traditionalism traditional traditionally	

# What is an American?

## PROBLEM OF THE WEEK



Immigrants have built and shaped the United States. Through the years, these **resourceful** Americans endured many hardships, from discrimination to the Great Depression. They brought cultural **elements** like food, dress, and religious **traditions** from around the world. The **complexity** of our national **culture** reflects the great diversity of our people. Let's think about that diversity mathematically.

The table shows the top ancestries reported on the 2000 U.S. Census.


**Option 1:** According to the table, which of the following statements is true?

- A) Most Americans have German ancestry.
- B) More Americans reported having African-American ancestry than Irish ancestry.
- C) More Americans reported having Mexican ancestry than English ancestry.
- D) More Americans reported having German ancestry than any other ancestry.

Top Reported Ancestries, by Percentage of U.S. Population	
German	15.2%
Irish	10.8%
African-American	8.8%
English	8.7%
American	7.2%
Mexican	6.5%
Italian	5.6%
Polish	3.2%
French	3.0%
American Indian	2.8%

**Option 2:** According to the table, an American chosen at random is how much more likely to have German ancestry than Mexican ancestry? Round your answer to the nearest hundredth.

Answer: 2.34 times more likely

 **Discussion Question:** Our national **culture** blends **elements** from many different cultural **traditions**, and yet Americans feel great pride in being American. The responses to the question about ancestry on the U.S. Census hint at the **complexity** of Americans' cultural identity. For example, 7% of Americans, or over 20 million **resourceful** citizens, said their ancestry is "American" although the question was worded to encourage a different answer. What does this mean? Is it possible to have American ancestry? Or do these people just have such strong feelings about the U.S. that they consider themselves "American," regardless of their real ancestry? What do you think?

## What Is an American?

### THINKING SCIENTIFICALLY

The students in Ms. Kahn’s class are talking about the cultural makeup of the United States. “There are so many different **elements** to our **culture** that people have brought from all over the world,” says Mario, “but I feel like there’s a shared **tradition of resourcefulness** that unites us as Americans. For example, my great grandparents arrived from Sicily in the 1920s. It took a lot of guts to leave behind everything they knew and start over, and a lot of thrift and resourcefulness for them to build a life out of virtually nothing. It’s the same for lots of groups: the people who came were the risk takers, so wherever they came from, they had something in common.”

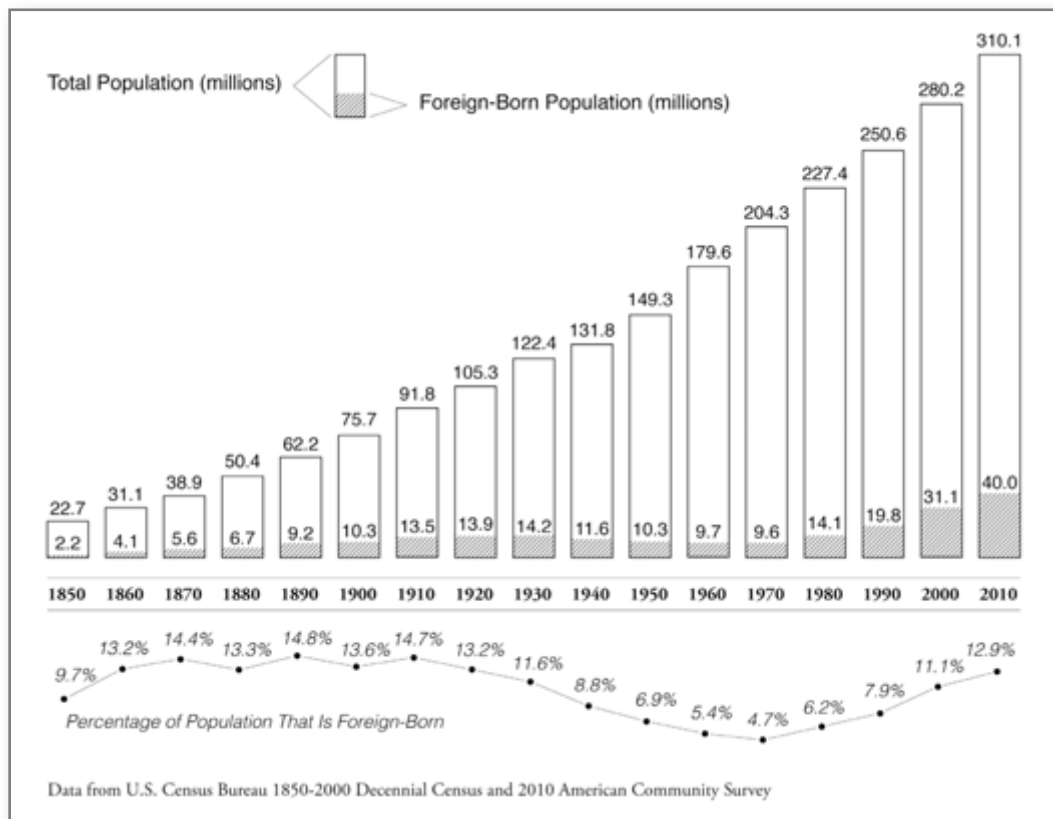
“Okay, but don’t forget that not everyone made that kind of choice to come here,” says Alyssa. “There were slaves from Africa, British criminals sent here as punishment during colonial times, and Native Americans facing invasion. Lots of different groups have been resourceful, even those that didn’t choose to immigrate. In my opinion, what’s most impressive about the U.S. isn’t our shared tradition, but the **complexity** of all the different traditions.”

“Most of my family came from Japan before World War II, and from Hawaii before it became a state in 1959,” says Sumiko. “But one of my grandmothers was descended from Europeans who arrived in the British colonies before 1776. I wonder if immigration has increased or decreased over the last century or two. Immigration is in the news all the time. I bet we’re more of a nation of immigrants now than we’ve ever been before.”

“I doubt it,” says Alyssa.

“Maybe some of you could do some research on U.S. immigration over time,” says Ms. Kahn.

➔ Mario, Alyssa, and Sumiko found some statistics on U.S. immigration since 1850 and presented the following chart to the class.



Over the time period represented in this table, what has been the trend in the total population numbers?

Total population has risen consistently.

Has the foreign-born population changed in the same way?

No. Foreign-born population declined for a few decades.

What’s the most accurate way to describe the difference between the data for 1910 and for 2010?

The total population and the number of foreign-born people were both greater in 2010 than in 1910; but a larger proportion of the population was foreign-born in 1910.



# What is an American?



## DEBATING THE ISSUE

### Get ready...

Pick one of these positions (or create your own).

**A** America has its own unique shared culture that is different from others. American culture includes traditions that originate in America (e.g., Thanksgiving) and are common among those who live in the U.S., regardless of their original heritage.

**B** America is a patchwork of different cultures. All elements of American culture can be traced to some other culture. There is nothing that is uniquely American, and there is no culture that is shared by all Americans.

**C** People have multiple cultures. Americans transform what is brought from other cultures into a unique American brand of values, customs, traditions, etc. that is shared across ethnic groups, while also practicing customs that are specific to certain social or ethnic subgroups.

**D** America does not have a single uniform culture. Each American develops an individual lifestyle that draws from many different cultures. There are American subcultures, such as hip-hop, that originate in America and can include people from different ethnic backgrounds.

**E** \_\_\_\_\_  
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#### TEACHER

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# GO!

Be a strong participant by using phrases like these.

*I believe that...*

*I agree with you because...*

*Can you show me evidence in the text that supports what you said?*

*You make a good point, but have you considered...*



Join the national conversation!



Word Generation - Unit 1.04

## Focus Words

design | feature | impact | potential | transfer



## WEEKLY PASSAGE

What makes you who you are? Both your genes and your experiences have an impact on your identity. Your genes contain information about your own unique **design**. They help determine many of your **features**, such as your eye color, your height, and which hand you use to write.

Scientists have invented a process called cloning that allows them to copy the genes of living things, or organisms. Scientists **transfer** some of an adult organism's genes to a new egg. After the transfer, a clone or copy of the original organism starts to develop. Researchers are using one type of cloning to study new treatments for diseases like cancer. They believe that cloning has the **potential** to help people with serious illnesses. Many farmers are cloning plants to produce crops featuring qualities that people like, such as juiciness in tomatoes. Some farmers are interested in cloning animals, too. For instance, they want to clone cattle that produce particularly tasty and tender beef.

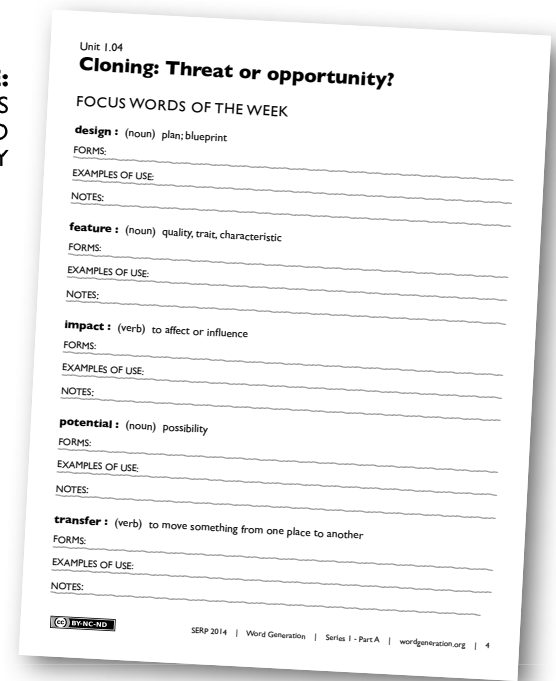
In the future, scientists may be able to clone a person. This process could create identical twins born at different times. But is that a good idea? Many people worry about how cloning will **impact** our lives. What would happen if people could design other people? What if, for example, leaders could choose the features they wanted their soldiers to have and then make an army of clones? What if parents could clone their children? Should people be allowed to clone their pets? How might we take advantage of the benefits cloning offers while preventing potential problems?

### TEACHER

#### Discussion Questions:

- ▶ What would happen if your genes were transferred to a new human egg?
- ▶ What are some potential benefits of cloning?
- ▶ What impact could cloning have on the food we eat?
- ▶ If you could design an army of clones, what features would they have?
- ▶ Potentially, what could go wrong if people were able to clone their pets?

**PLEASE NOTE:**  
THE STUDENT VERSION OF THIS  
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DIFFERENTLY



## Unit 1.04

### WORD CHART FOR TEACHERS

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/Suffixes	
design	(n.) – plan; blueprint	designs designed designing design (v.)		designer redesign designate designation	signature resign consign
feature	(n.) – quality, trait, characteristic	features (pl.) featured featuring features feature (v.)		featureless	
impact	(v.) – to affect or influence	impacts impacted impacting impact (n.)		impactful	
potential	(n.) – possibility, future capability			potentially potential (adj.) potentiate potent potency impotent	
transfer	(v.) – to move something from one place to another	transfers transferred transferring transfer (n.)		transferral transferrable transferability	infer refer confer defer

# Cloning: Threat or opportunity?



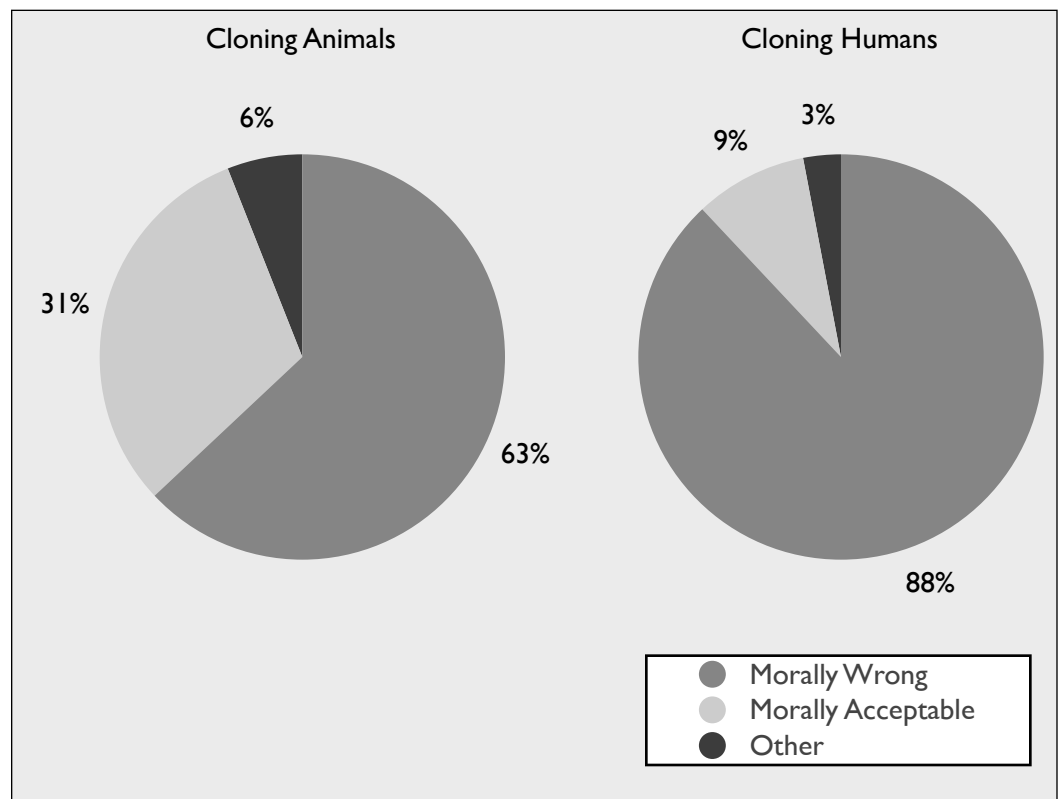
## PROBLEM OF THE WEEK

Cloning an organism means **transferring** its genes to a new egg, and allowing a copy to develop with the same **design** as the original. Scientists are already cloning cows for the beef industry. They choose cows with especially tender meat, or other desirable **features**. There are many other **potential** applications of cloning. Should we clone endangered species? Many people need new organs to survive. Are human clones the answer? Despite the potential for good, many people worry about the **impact** of this new technology on our society.

Here are the results of a 2010 Gallup poll that told how Americans felt about cloning.

**Option 1:** Based on the graphs, which of the following statements is true?

- A) Most Americans think that cloning humans is morally okay.
- B) Most Americans believe that cloning humans is morally equivalent to (or the same as) cloning animals.
- C) Most Americans think that neither animals nor humans should be cloned.
- D) Most Americans think that cloning animals is morally okay.



**Option 2:** True or False:

Based on the graphs, 25% of Americans believe that cloning animals is okay, but cloning people is not.

Answer: Actually, this is false. This would be true only if all of the people who disagree with animal cloning also disagree with human cloning. (Then,  $88\% - 63\% = 25\%$ ) This seems likely, but based on the information given it is at least POSSIBLE that some people find animal cloning morally wrong, but human cloning morally okay.

**Discussion Question:** Many people believe that each human being is uniquely **designed** by God. Our society is built on the idea that each human is a special creature with special responsibilities and rights. Are these ideas in danger? Are you a unique and special individual, or are you simply a collection of **features**, like hair color, height, and IQ? What **impact** would human cloning have on the idea of human rights? Would human rights **transfer** to human clones? Why do so many Americans think cloning is wrong? What are some **potential** problems with cloning humans?

# Cloning: Threat or Opportunity?



## THINKING SCIENTIFICALLY

The students in Mr. Seemy’s class are arguing about the **potential impact** of cloning on society. Suddenly Chris says, “Wait a minute. I’m not sure I really even understand what cloning is. I imagine some sort of magic copy machine, or a giant test tube or fish tank with copies of people or animals growing in it, but I have a feeling that’s just science fiction.”

Miranda says, “It has something to do with DNA, the molecule that controls what physical **features** get passed from parents to their children. Usually a baby gets a mix of its parents’ DNA, but cloning somehow involves copying just one individual’s DNA to make another individual. But I don’t know how that’s actually done.”

“The first mammal that scientists cloned was a sheep, back in 1996,” says Mr. Seemy. “They named the cloned sheep Dolly, and she was probably the world’s most famous sheep! Why don’t you two do a little research on how Dolly was cloned?”

➔ Chris and Miranda did some research and put together the following short description of the cloning process used to produce Dolly. This is still the general approach used for cloning animals.

On the left is Marina and Chris’s simplified five-step summary of how to clone an animal. But the images on the right, **designed** to illustrate the process, are all mixed up. See if you can match each step to its correct illustration. The first one is done for you.

**Step 1:** Take an egg cell from a female sheep and remove the nucleus from the egg. (The nucleus is where a cell’s DNA is.)

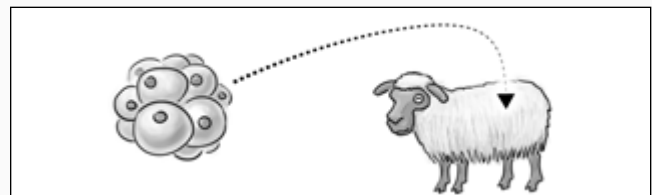
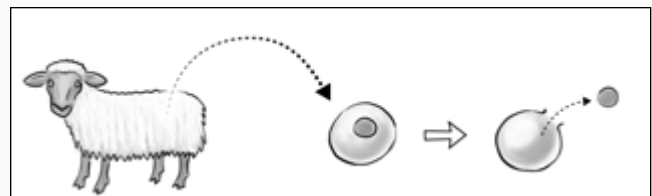
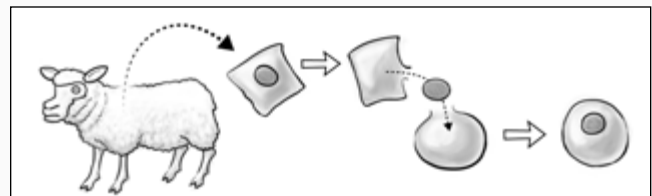
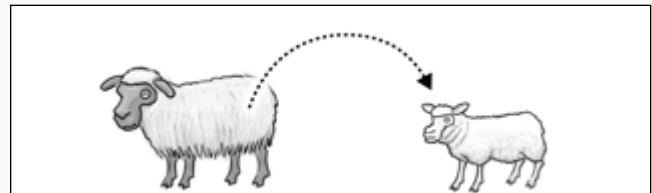
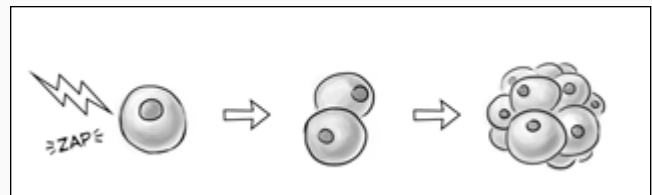
Teacher notes

**Step 2:** Take a non-reproductive cell (not an egg or sperm cell) from the sheep you want to clone. **Transfer** the nucleus from that cell to the nucleus-free egg.

**Step 3:** Give the egg cell a small electric shock to make it start dividing. As it divides, it grows into an embryo.

**Step 4:** Put the embryo into another sheep who will be the “surrogate” (substitute) mother.

**Step 5:** The surrogate mother sheep gives birth to a sheep that is a genetic copy—a clone—of the sheep that provided the DNA from its non-reproductive cell.



# Cloning: Threat or opportunity?



## DEBATING THE ISSUE

### Get ready...

Pick one of these positions (or create your own).

**A** Cloning of any kind should be forbidden.

**B** Cloning of plants should be allowed, but cloning of animals should be forbidden.

**C** Cloning of plants and farm animals should be allowed, but cloning of humans should be forbidden.

**D** Cloning should be allowed for research purposes related to treating disease (therapeutic cloning), but cloning of people (reproductive cloning) should not be allowed.

**E** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### TEACHER

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*You make a good point, but have you considered...*





Join the national conversation!

# DOES RAP MUSIC HAVE A NEGATIVE IMPACT ON YOUTH?

Word Generation - Unit 1.05

## Focus Words

considerable | contribute | demonstrate | sufficient | valid



## WEEKLY PASSAGE

Some people believe that rap music has had **considerable** influence on children and teenagers, most of which has been negative. They claim that the lyrics are often violent and especially insulting to women. Thus, they say, rap has **contributed** to aggression among young people and to behavior that disrespects women.

But is that a **valid** claim? Supporters of rap music say the songs **demonstrate** a different face of American culture than the one we usually see on television or in newspapers. They think it's important for rappers' voices to be heard. Other people argue that some individuals who listen to rap were probably violent before ever hearing this type of music. Thus we can't blame rap for their violent actions. Still others say that rap is a form of creative expression – this generation's poetry. They point to rap artists who create positive images for today's youth.

However, some parents are worried about the messages conveyed by rap music and asked the

music industry to label CDs with a warning. Many rap music fans consider this a form of artistic censorship that has no place in a free society.

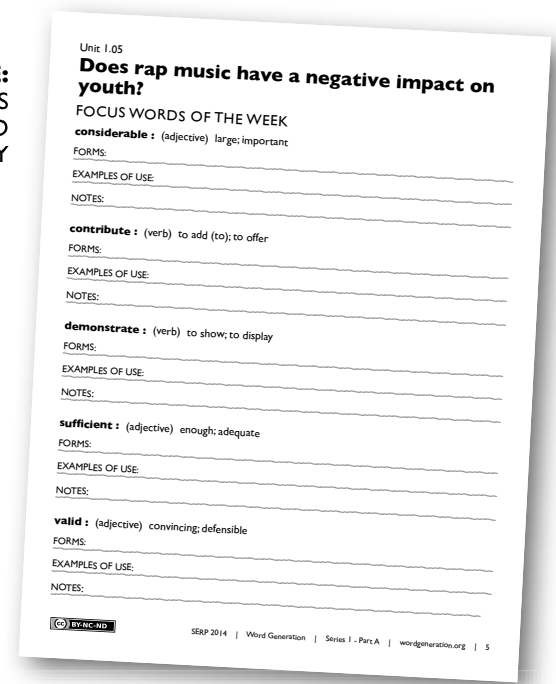
Do you think that listening to rap leads to aggression? Should we have rules to prevent rap artists from talking about violence, especially violence against women? What would be **sufficient** evidence, in your view, to support the claim that rap has a negative impact on youth?

### TEACHER

Discussion Questions:

- ▶ Are people's concerns about the dangers of rap music valid?
- ▶ Do you think that rap music contributes to violent or aggressive behavior?
- ▶ What does rap music demonstrate about American culture?
- ▶ Do you think labeling CDs with a warning is sufficient to keep kids from hearing music that is disrespectful?
- ▶ Do you think rap music has had considerable influence on today's kids, either positive or negative?

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## Unit 1.05

### WORD CHART FOR TEACHERS

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		Inflectional	Basic Word Classes	Prefixes/Suffixes	
considerable	(adj.) – large; important		consider	considerably	considerate consideration
contribute	(v.) – to add (to); to offer	contributed contributed contributing		contributor contribution	distribute retribution
demonstrate	(v.) – to show; to display	demonstrates demonstrated demonstrating		demonstrator demonstrative demonstration demonstrable demonstrably	monster remonstrate
sufficient	(adj.) – enough; adequate		suffice	sufficiency sufficiently	deficient proficient
valid	(adj.) – convincing; defensible			validate validation validity validly invalid	valor

# Does rap music have a negative impact on youth?



## PROBLEM OF THE WEEK

Does rap music **contribute** to violence? A **considerable** number of rap songs talk about hurting and killing people, especially women. However, this is not **sufficient** to show that rap itself is dangerous. Researchers have tried to **demonstrate** connections between rap music and aggressive behavior in many different studies. They try to establish **valid** conclusions by keeping many possibilities in mind. For example, even if rap listeners exhibit violent behavior, the music itself may not be the cause.

One study compared two groups: students who watched rap music videos for 14 or more hours each week, and students who rarely or never watched them. The students who watched the videos for at least 14 hours each week showed the following characteristics.

- ▶ *They were three times more likely to hit a teacher*
- ▶ *They were over 2.5 times more likely to get arrested.*

**Option 1:** Based on the information above, is the following conclusion valid or invalid?

Students who watched 14 or more hours of rap music videos each week were more likely to hit a teacher than to get arrested.

- A) The conclusion is valid.
- B) The conclusion is invalid.


**Teacher’s Note:** The information given does not compare the likelihood of hitting a teacher to the likelihood of getting arrested. The high-frequency viewers were three times more likely than the low-frequency viewers to hit a teacher, but we aren’t told what that frequency is, so we can’t compare it to the likelihood of getting arrested.

**Option 2:** Manny watches 7 hours of rap music videos each week. Based on the information above, is the following conclusion valid or invalid?

Manny is 1.5 times more likely to hit a teacher than students who rarely or never watch rap music videos.

- A) The conclusion is valid.
- B) The conclusion is invalid.

**Teacher’s Note:** The conclusion is invalid because we have no reason to believe that the relationship between watching rap music videos and hitting a teacher is linear. Here is an example of a linear relationship: Alex’s father pays her \$2 for each book she reads. We know that each book brings \$2, and we could draw a straight line on a graph representing the relationship between books read and dollars received. In the real world, most relationships are not linear. For example, we know that eating healthy foods contributes to a healthy body and a long life, but we would not expect each fresh apple a person eats to add a certain measurable value to her quality of life or a predictable number of seconds to her life expectancy.

 **Discussion Question:** What if researchers could **demonstrate** a **valid** cause-and-effect relationship between rap music and violent behavior? For example, what if researchers could show that non-violent teens became violent after listening to rap? Would this be **sufficient** reason for us to ban certain songs or artists? The Constitution gives **considerable** protection to free speech. However, not all speech is protected. Words that endanger others (such as, in one famous example, yelling “Fire!” in a crowded theater) can be banned. What can you **contribute** to this debate? Where should we draw the line between free speech and public safety?

## Does Rap Music Have a Negative Impact on Youth?

### THINKING SCIENTIFICALLY

“I heard that our principal, Ms. Jackson, is considering banning all rap music at school,” said Anthony.

“Why on Earth would she do that?” asked Haley. “It makes no sense, and it’s not fair. I like having rap songs played over the loudspeakers before my basketball games. It helps me get pumped up.”

“Ms. Jackson thinks listening to rap **contributes** to school violence,” said Anthony.

“Does she have any evidence to **demonstrate** that’s true?” asked Jamal.

“She checked the playlists of all the kids who got into fights last semester,” said Anthony, “and she found that 85 percent of them had rap music. She figures that is **sufficient** evidence against rap, and that banning rap will lead to less fighting.”

Haley frowned. “That’s not a **valid** conclusion,” she said. “I bet 85 percent of kids who got into fights wore pants, too, but that’s not a reason to ban pants!”

Ms. Kahn laughed. “That’s an interesting way of making your point, Haley,” she said. “It sounds like you doubt that the correlation she used was scientifically sound. Maybe you should do some research and see if you can come up with some useful data for Ms. Jackson to consider.”



### TURN AND TALK:

Haley, Jamal, and Anthony spent a week conducting surveys, and they found that approximately 85 percent of all students had rap music on their playlists. Discuss with a partner what you would say to Ms. Jackson.

*Make bullet points summarizing your partner’s thinking:*

→	Students may make various points. For example... <ul style="list-style-type: none"> <li>• If 85% of all students have rap on their playlists, then the fact that 85% of those who got into fights also have it doesn’t show any correlation between rap and fighting.</li> <li>• Assuming that rap leads to fighting might have more to do with unproven assumptions than with evidence.</li> <li>• There’s a lot of variety in rap lyrics. We should be careful about generalizing about rap from just those songs that have violent content.</li> </ul>	_____
→		_____
→		_____



# Does rap music have a negative impact on youth?



## DEBATING THE ISSUE

### Get ready...

Pick one of these positions (or create your own).

**A** Rap songs that promote violence, especially violence against women, should not be sold to minors because they set a bad example.

**B** Freedom of speech is an important American right, so rap lyrics should never be censored, no matter what they say.

**C** Rap artists should take some responsibility for setting a good example for young people, and promoting violence does not set a good example, but it is ultimately their choice to write about whatever they want.

**D** Rap music is an important form of creative expression, and kids are smart enough to be critical of bad messages and make responsible decisions about how to behave toward each other.

**E** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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Join the national conversation!



# ANIMAL TESTING: IS IT NECESSARY?

Word Generation - Unit 1.06

## Focus Words

rely | react | alternative | justify | proportion



## WEEKLY PASSAGE

Animals are used in research by scientists seeking cures for disease. They are also used by pharmaceutical and cosmetic companies to test drugs, makeup, lotions, soaps, and shampoos. Why do we **rely** on animals to test our products for safety? Because animals share many genes and organs with humans, scientists say that using them advances knowledge and protects humans from potentially harmful effects of new products.

If animal testing is designed to protect humans, then why do so many people **react** negatively to it? Today, more and more people will not buy products tested on animals because they consider animal testing cruel and unnecessary. Companies that use **alternative** methods of testing products are advertising to people who don't mind buying shampoo or laundry detergent that is a bit more expensive in order to avoid products tested on animals.

Medical researchers say that only a small **proportion** of animals are used in painful or

dangerous tests. Animal rights defenders say even one is too many.

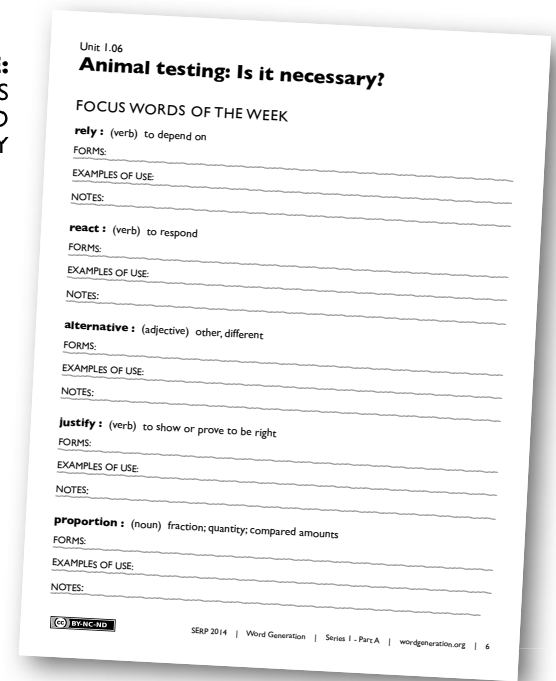
Is it okay to test drugs or makeup on animals? Do humans have more rights than animals? Is animal testing **justified** because it helps humans?

### TEACHER

#### Discussion Questions:

- ▶ Who relies on animal testing, and for what purposes?
- ▶ How do scientists justify using animals to test products for humans?
- ▶ Why do some people react negatively to the practice of animal testing?
- ▶ What proportion of products that you use do you think might be tested on animals?
- ▶ What might be some alternatives to testing products on animals?

**PLEASE NOTE:**  
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## Unit 1.06

### WORD CHART FOR TEACHERS

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/ Suffixes	
rely	(v.) – to depend	relies relied relying		reliable reliably reliant reliance	
react	(v.) – to respond	reacts reacted reacting	act	reaction reactive reactivity reactionary reactor	enact actor
alternative	(adj.) – other, different		alternate (v.)	alternatively alternate (n.) alternative (n.)	alter alteration
justify	(v.) – to show or prove to be right	justifies justified justifying	just	justifiable justifiably justification	justice adjust
proportion	(n.) – fraction; quantity; compared amounts	proportions proportioned proportioning	portion	proportionate proportional disproportionate	



# Animal testing: Is it necessary?



## PROBLEM OF THE WEEK

Many different groups, from makeup companies to cancer research labs, use animal testing. Some look for **alternatives** to animal tests. Others try to **justify** their work, saying that animal testing saves money and human lives. It is difficult to find **reliable** statistics about how many animals are used for testing in the U.S. each year. One estimate is 21 million animals.

Some people **react** differently to animal testing depending on what kind of animal is being used. Using dogs, for example, may seem worse than using rats. A large **proportion** of test animals are rats, mice, and other rodents. Some organizations have estimated that 90% of research animals in the U.S. are rodents.

**Option 1:** According to the estimates given above, how many of the 21 million test animals are rodents?

- A) 17,800,000
- B) 18,000,000
- C) 18,500,000
- D) 18,900,000

**Option 2:** The Humane Society estimates that 3.5 million cats and dogs are euthanized, or killed, each year due to overpopulation. According to the US Department of Agriculture, about 100,000 cats and dogs were used for animal testing in 2005.

Based on the information above, fill in the blank:

About \_\_\_\_ times as many dogs and cats are euthanized due to overpopulation as are used for animal testing each year. (Hint: to solve the problem quickly, use exponents.)

Answer: 35 (3.5 million / 100,000, or  $3.5 \times 10^6 / 1 \times 10^5$ )

**Discussion Question:** When researchers estimated that 21 million animals are used for testing in the U.S. each year, they were not counting invertebrate animals, like shrimp, fish, worms, and flies. Some people say invertebrates aren't really animals. They think that although invertebrates can **react** to stimuli (a shrimp, for example, will move away from an electric shock), they cannot feel pain. Invertebrates make up a much larger **proportion** of test animals than even rats and mice. They are not covered by the rules that help protect vertebrates like cats, rats, and chimps. Is this unequal treatment **justified**? Many of us have a gut feeling that a rabbit is worth more than a fruit fly. We kill bugs, but when a pet dies, we cry. Can we **rely** on these feelings to help us make fair decisions about animal testing? Or should we develop an **alternative** system that treats all animals the same?

## Animal Testing: Is It Necessary?

### THINKING SCIENTIFICALLY



The students in Mr. Seemy's class are arguing about the morality of using animals in medical research. "I'm really passionate about stopping animal testing," says Kyra. "I think about my dog, Jasper, and I think, 'What if it were him?' I know he can feel happy or sad, trusting or afraid. I can't stand to imagine him in a painful experiment."

"I can understand why you **react** so strongly to animal suffering," says Aliyah, "but I'm passionate about the value of medical research. My mom is diabetic, and she would probably be dead now if it weren't for past research on insulin using pancreases from dogs. I believe the benefit to my mom and millions of people like her **justifies** animal research."

"I've read about the research you're talking about," says Kyra. "Those dog experiments led to the discovery of insulin almost a hundred years ago. But there are all kinds of **alternatives** to animal research these days—computer simulations and things like that. Scientists have even started working on what they call 'organs-on-chips.' They're not computer chips, they're little devices that use real, living human cells from various human organs. They can test drugs on lung cells or heart cells, and they can simulate real blood and air flow so it's a more lifelike situation than just working with cells in a test tube or something."

"That's great," says Aliyah. "But scientists still need to be able to test drugs and other treatments on whole living animals, or they won't be able to predict how a treatment might affect a whole living person. What if you use a lung-on-a-chip to prove that a new asthma medication is safe for lung cells, but you don't find out that the same medicine causes brain tumors? Studying the drug in rats before using it on people could save human lives."

"You're both raising a really interesting issue about *models*," says Mr. Seemy. "When you test a medication on a rat or on one of these new organs-on-a-chip, you're using the rat or the chip as a model of a real human. The model represents the thing you really want to know about—the human—but without putting the human at risk."

"It's hard to think of either a rat or a chip as a model of a person," says Anna. "Neither of them *looks* like a person."

"True, but a model in this sense doesn't have to *look* like the thing it represents," says Mr. Seemy. "Models can be things that just represent an aspect of how something works."

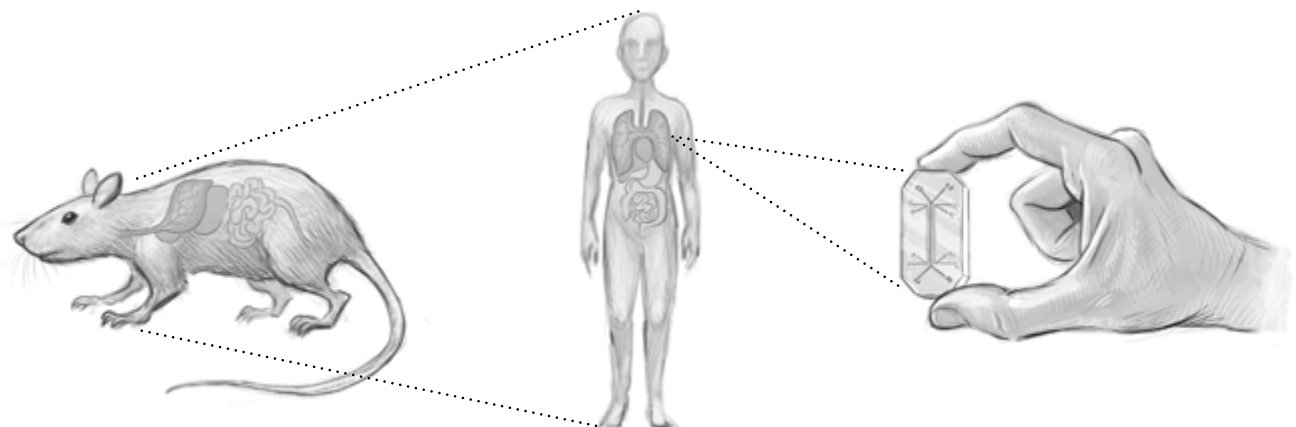
"I'd be happy to see the **proportion** of animal testing in medical research drop," says Aliyah. "But only if we can really **rely** on **alternative** models to be at least as good as animals at representing human biology."



### TURN AND TALK:

Consider a live rat and a lung-on-a-chip (containing human lung cells) as possible models for use in an experiment on the effect of a medication on human lung tissue. In what ways do you think the rat is the better model (representation) in which to test novel drugs? In what ways do you think the chip is the better model of a living human?

These two experimental models of human beings have different strengths and weaknesses. The rat may be a better model in the sense that it is a whole organism, with organs and organ systems that interact with each other in a way that's generally similar to the way a human body works. The lung-on-a-chip may be a better model in the sense that it has actual human cells; it might be better at revealing some results of exposure to chemicals that affect rats and humans differently.



# Animal testing: Is it necessary?



## DEBATING THE ISSUE

### Get ready...

Pick one of these positions (or create your own).

**A** Animal testing should be allowed for all drugs, makeup, lotions, soaps and shampoos. Because animals and humans share so many genes, this is the best way for scientists to predict the reactions that humans will have to these substances, and thereby prevent large numbers of people from becoming sick.

**B** Animal testing should never be allowed. It is cruel to cause pain to innocent animals, and if scientists were not allowed to do it, they would rely on other ways to test drugs and cosmetics.

**C** Animal testing should only be allowed for important drugs that could be used to treat serious diseases in humans. The pain that animals experience is justifiable if it saves human lives. Makeup, lotions, soaps, and shampoos should not be tested on animals because they do not benefit human health.

**D** Animal testing that causes animals a lot of pain should never be allowed because the benefits to humans do not justify this. Animal testing should be permitted only in circumstances where the animals will not be seriously hurt.

**E** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**TEACHER**  
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# CENSORSHIP: WHO SHOULD DECIDE WHAT YOUNG PEOPLE READ?

Word Generation - Unit 1.07

## Focus Words

access | civil | despite | integrate | promote



## WEEKLY PASSAGE

Each year, people try to keep certain books out of schools and libraries. They feel that students should not have **access** to literature about subjects they consider inappropriate for young readers. Many popular books have been challenged or banned in recent years. The list includes *To Kill a Mockingbird* by Harper Lee, *The Giver* by Lois Lowry, and *The Bluest Eye* by Toni Morrison. *Harry Potter* is even on the list.

Some people think that youth should be protected from difficult issues, such as racism or violence. They also think that books can give kids bad ideas. Other people suggest that youth are facing tough issues in their lives already. If those issues are **integrated** into meaningful stories, young people might find books helpful for understanding their own lives. For example, when a novel incorporates a problem such as racism, it can help kids dealing with prejudice to feel less alone. It might also help them to see how their actions can affect other people.

Librarians and teachers try to **promote** positive attitudes toward reading. They like to see students fully engaged with relevant literature. Some librarians and teachers want censored books to be accessible to students because they are often interesting to read. Many American citizens argue that book banning and other types of censorship violate their **civil** rights.

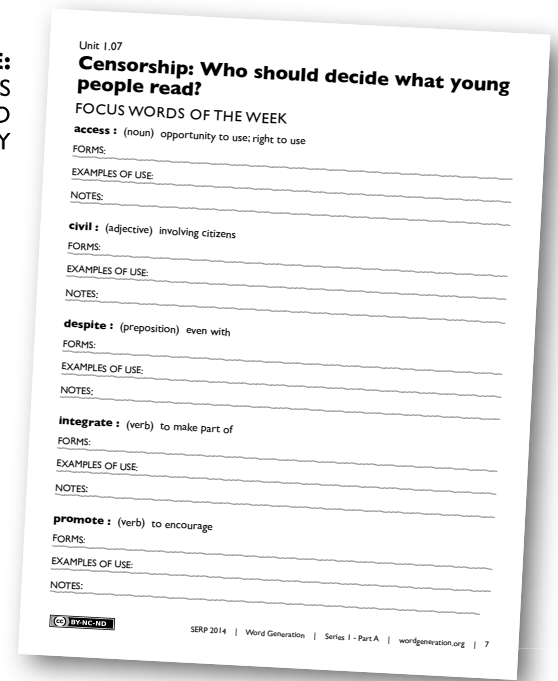
Should students have the freedom to read anything they choose **despite** the possible risks?

### TEACHER

#### Discussion Questions:

- ▶ Should adults have the right prevent young readers from having access to books they consider inappropriate?
- ▶ Why do some people feel that having access to books dealing with tough issues can be helpful for students, despite the risks?
- ▶ Why do librarians and teachers think they can promote positive attitudes toward reading by making banned books accessible to students?
- ▶ What are some examples of novels that integrate issues of racism or violence into their plots?
- ▶ How is book censorship a civil rights issue?

**PLEASE NOTE:**  
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## Unit 1.07

### WORD CHART FOR TEACHERS

This chart is not in the student book. It is a resource for teachers to support students in the use of the focus words each week. Students are provided one page in each unit immediately following the weekly passage with a basic definition printed and space for taking notes.

Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/ Suffixes	
access	(n.) – opportunity to use; right to use	access (v.) accessing accesses		accessible accessibility accessibly accessory	concession recession procession
civil	(adj.) – involving citizens or citizenship			civilize civility civilized civilian civilization	civic
despite	(prep.) – even with				spite spited despise despicable
integrate	(v.) – to make part of	integrates integrated integrating		integrative disintegrate	integral
promote	(v.) – to encourage	promotes promoted promoting		promotion	motive motion demote

# Censorship: Who should decide what young people read?



## PROBLEM OF THE WEEK

The American **Civil** Liberties Union (ACLU) **promotes** individual rights and liberties. The ACLU believes that defending civil liberties is always important, **despite** the fact that people strongly disagree about certain situations. In 1999, the ACLU sued the town of Wichita Falls, Texas for restricting **access** to two children's books. The books, *Daddy's Roommate* and *Heather has Two Mommies*, have gay and lesbian characters. Some citizens had signed a petition complaining about the books. Then, the books were moved to the adult section of the library.


At the time, the move was legal. The law in Wichita Falls said that if 300 people signed a petition, a children's book could be moved to the adult section. ACLU members said moving the book was just like hiding it. All children's books, they said, should be **integrated** into the children's section of the library.

**Option 1:** The population of Wichita Falls is about 100,000. Which statement is true?

- A) 300 people is less than 1% of the population
- B) 300 people is about 3% of the population
- C) 300 people is more than a third of the population
- D) 300 people is about 5% of the population

**Option 2:** If 300 of 100,000 residents signed the petition against the two children's books, what is the probability that a resident chosen at random signed the petition?

Answer:  $3/1,000$ , or  $\approx .003$

 **Discussion Question:** The **civil** code of Wichita Falls allowed a small percentage of the city's residents to control **access** to certain books. Some people said this was fair. They said that communities have a right to **promote** certain values, and that libraries should reflect these values. If a book offends people, it should be removed. Other people disagreed, saying that the library should **integrate** the views of all different groups, **despite** the fact that some groups might disagree with each other. Which view seems right to you?

## Censorship: Who Should Decide What Young People Read?



### THINKING SCIENTIFICALLY

“I heard that our principal, Ms. Jackson, is going to ban *Captain Underpants* from the school library,” says Haley.

“Hold on a second,” says Ms. Kahn, “let me head off that rumor before it goes viral. Ms. Jackson and some of us teachers were talking about the American Library Association’s annual list of books that people have tried to ban from libraries and schools, and she mentioned that the *Captain Underpants* series of graphic novels were at the top of the list two years in a row, in 2012 and 2013. But as far as I know, neither Ms. Jackson nor anyone else is talking about banning any books at our school.”

“How did restricting kids’ **access** to *Captain Underpants* reach the top of anybody’s list?” says Max. “There must be a lot of worse books that deserve to be banned more.”

“That’s not even the point,” says Haley. “Nobody should be banning anything. People on opposite sides of various issues might feel like banning each other’s favorite books, but that’s not how we should deal with disagreements. Better to just take censorship off the table **despite** our not liking a lot of what gets written. We should talk with each other in a **civil** way about the things we disagree about.”

“Well, I disagree with that,” says Marian. “I don’t think we should tolerate books and magazines that **promote** disrespect.”

Jamal joined in the conversation. “I write for the student paper, and we’ve had the issue of censorship come up there. Every once in a while, a parent says the school shouldn’t let students say certain things. Our faculty sponsor, Mr. Lee, always talks with us about considering the feelings and ideas of the critics. He encourages us to **integrate** opposing views into our arguments, but he defends our right to express ourselves and take on any topic.”

“There are obviously a lot of different dimensions to the issue of censorship,” says Ms. Kahn. “I wonder if anyone has done any research on young people’s attitudes towards censorship in schools. Maybe some of you could see what you can find out about that.”

→ Haley, Max, Marian, and Jamal find a Gallup Youth Survey from 2005, and share its results with the class.

For this survey, 549 teenagers age 13-17 were asked whether or not they thought it was okay for public schools to impose each of the three following restrictions:

Is it okay for public schools to...	Yes	No
restrict bad language in student writing assignments?	75%	25%
limit what students are allowed to write about in school newspapers?	45%	55%
ban books and periodicals that school officials consider offensive?	44%	56%

This survey had a margin of error of plus or minus 5%. Given that margin of error, is it possible to say which of the three restrictions was most acceptable to students? Is it possible to say which was least acceptable to students?

With 75% approval, banning bad language in student writing assignments is clearly the most acceptable practice to the students who were surveyed. We can’t be sure which gets second and third place, though, because the difference between 45% and 44% is less than the margin of error (5%).

Take the survey as a class. Are your class’s results similar to those of the original Gallup Youth Survey?

Answers will vary.



# Censorship: Who should decide what young people read?



## DEBATING THE ISSUE

### Get ready...

Pick one of these positions (or create your own).

**A** Students should be free to read anything they want to because books that deal with tough issues can help young people cope with these things in their own lives. Youth can learn better ways to respond to drugs or racism or violence if they can read about characters facing those issues.

**B** Students should be free to read anything they want to because having access to censored books will promote reading. Censored books are often very interesting to read, and younger readers are more likely to become engaged in books that integrate issues relevant to their lives.

**C** Adults should carefully select appropriate books to keep students from from being upset by books that deal with mature issues like drugs, racism, or violence. Young readers are not ready to handle these topics, so reading about such issues might make them depressed or frightened.

**D** Adults should carefully select appropriate books for students so kids will not learn about harmful ideas or behaviors. Reading a book with violent or racist characters might lead young students to think that violence and racism are okay.

**E** \_\_\_\_\_  
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**TEACHER**  
Whatever the debate format, ask students to use academically productive talk when arguing their positions. In particular, students should provide reasons and evidence to back up their assertions. It may be helpful to read these sample positions to illustrate some possibilities, but students should be encouraged to take their own positions about the issue at hand.

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# GO!

Be a strong participant by using phrases like these.

*In my experience...*

*that's similar to what I think too...*

*When I re-read the text, it reminded me...*

*What makes you think that?*



Join the national conversation!



Word Generation - Unit 1.08

## Focus Words

attribute | cycle | hypothesis | project | statistics



## WEEKLY PASSAGE

Global climate **statistics** suggest that the average temperature of the earth's surface is increasing. For example, the warmest ten years of the 20th century were between 1985 and 2000. Another statistic indicates that surface temperatures have risen by about 1°F since the late 1800s. Though this change may seem small, it has raised the ocean level by an estimated 4 to 8 inches. This is because more snow and ice are melting into the sea. Many scientists support the **hypothesis** that global warming is linked to heavier storms, floods, and other extreme weather. They **attribute** these changing environmental conditions to human activities like driving cars that use a lot of gas. Scientists believe that people contribute to global warming through burning fossil fuels (coal, oil, and natural gas). Such activities increase certain gases that trap the sun's energy inside the atmosphere and warm the earth. This is called the greenhouse effect.

Scientists say that the current warm period is not just part of the earth's natural climate **cycle**. This trend

does not fit the usual pattern of warm periods followed by cool periods. Scientists **project** that temperatures will keep rising if we continue to ignore the impact of our activities.

Should people be allowed to drive SUVs? Should companies be allowed to make them? Should the government invest in exploring other energy sources? Who is responsible for preventing future destruction?

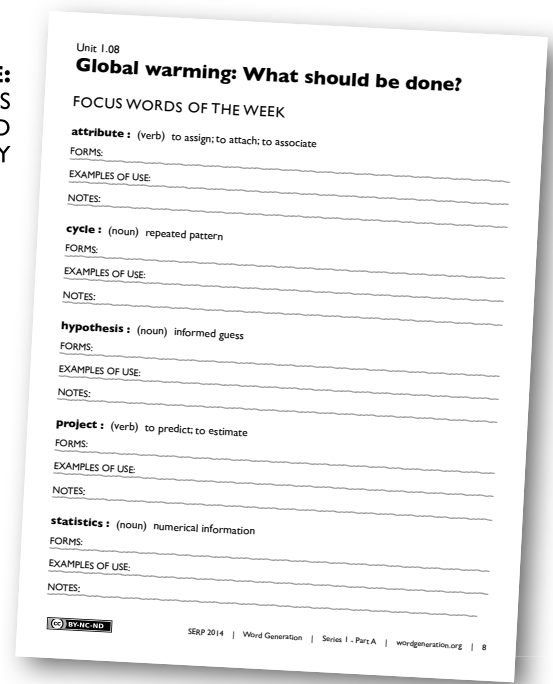
### TEACHER

#### Discussion Questions:

What are some statistics that show that the average temperature of the Earth's surface is increasing?

- ▶ To what do scientists attribute changes in environmental conditions?
- ▶ What hypothesis do scientists have about how people contribute to global warming?
- ▶ What do scientists project will happen in the future?
- ▶ What should be done to stop global warming?

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## Unit 1.08

### WORD CHART FOR TEACHERS

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/ Suffixes	
attribute	(v.) – to assign; to attach; to associate	attributes attributed attributing attribute (n.)		attribution attributable attributor	tribute tributary
cycle	(n.) – repeated pattern	cycles (pl.) cycle (v.) cycling cycled		recycle cyclic cyclical bicycle tricycle	cyclone
hypothesis	(n.) – informed guess	hypotheses	thesis	hypothesize (v.) hypothesizes hypothesizing hypothesized	
project	(v.) – to predict; to estimate a future amount or direction	projected projects projecting project (n.)		projection projectile	dejected inject eject adjective
statistics	(n.) – numerical information		statistic	statistical statistically statistician	status

# Global warming: What should be done?



## PROBLEM OF THE WEEK

Scientists agree that global warming is a serious problem. They **attribute** rising temperatures to human activities such as driving cars, heating buildings, and cutting down forests. However, most Americans are not convinced. In 2010, only 50% of Americans agreed that global warming was caused by humans. An almost equal number, 46%, had a different **hypothesis**: they attributed higher temperatures to the earth's natural **cycle**.

Climate data helps us understand our climate and **project** what will happen to it in the future. The National Climatic Data Center began collecting climate data in 1880. Here are some **statistics**.


- ▶ The warmest years on record were 2010 and 2005, with a global temperature (land and ocean) of 58.12° Fahrenheit
- ▶ All 12 of the warmest years on record have occurred since 1997.
- ▶ The average global temperature for 1901–2000 was 57° Fahrenheit.
- ▶ The last time the yearly average was below 57° was 1976.

**Option 1:** Based on the statistics above, which of the following is true?

- A) Average yearly temperatures fell over the last two decades.
- B) Average yearly temperatures appear to be rising.**
- C) Each year, the average yearly temperature increases.
- D) The average yearly temperature varied widely throughout the 20<sup>th</sup> century.

**Option 2:** Scientists project that temperatures will rise by 5.4° Fahrenheit by the end of the 21<sup>st</sup> century. Based on the statistics above, would this increase be more or less dramatic than the one we saw during the 20<sup>th</sup> century? Explain.

**Answer:** This increase would be much more dramatic than the increase we saw during the 20<sup>th</sup> century. We know this because a temperature of 58.12°, the record high temperature, is only 1.12° higher than the 20<sup>th</sup> century average.

 **Discussion Question:** Scientists around the world agree that global warming is a big problem. Climate **statistics** support the **hypothesis** that dangerously high temperatures are caused by humans. Experts **project** catastrophic flooding and famine if humans don't limit greenhouse gasses. Still, almost half of Americans believe that high temperatures are part of a natural climate **cycle**. To what do you **attribute** this gap between scientific evidence and people's beliefs? What would it take to convince Americans to take global warming seriously?

# Global Warming: What Should Be Done?



## THINKING SCIENTIFICALLY

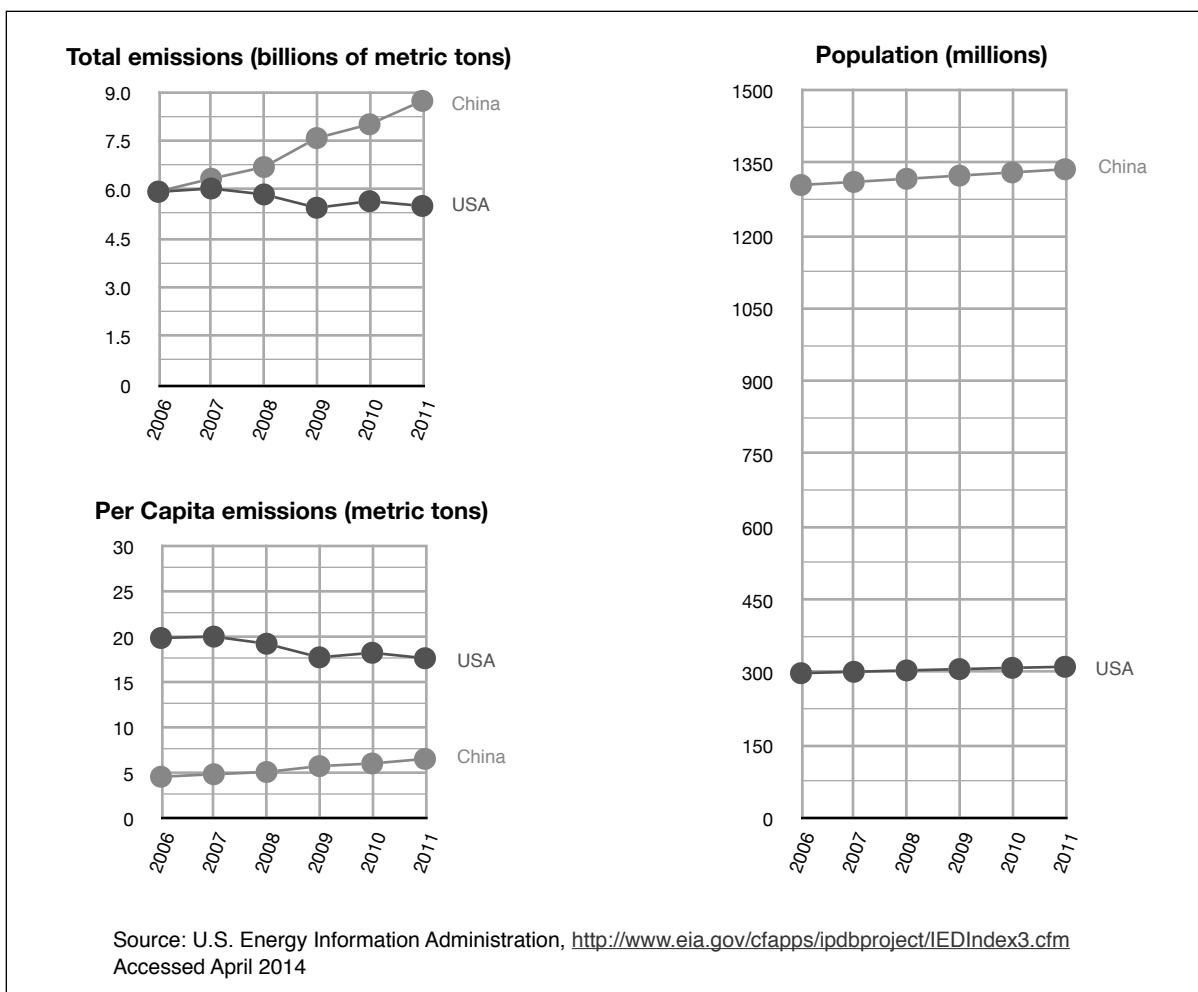
“The United States needs to do more about reducing carbon dioxide emissions,” says Kyra. “I read we’re responsible for more carbon dioxide emissions than any other country on earth except China. I think we should be a leader in the fight against climate change.”

“Well,” says Anthony, “If China is polluting more, maybe they should change first. I heard that their greenhouse gas emissions are **projected** to rise much faster than ours.”

“Everybody needs to do better,” says Aliyah. “There’s no use in everyone sitting around **attributing** responsibility to someone else. The whole world needs to help.”

“Figuring out who produces how much carbon dioxide can be tricky,” says Mr. Seemy. “Maybe some of you could find some **statistics** that would help us compare the roles of the United States and China.”

→ Kyra, Anthony, and Aliyah found some data on the website of the U.S. Energy Information Administration. They focused on “carbon dioxide emissions from the consumption of energy” for China and the United States. They looked at the total emissions for each country, and also at the “per capita” (per person) emissions for each country, and made the following graphs.



✍ Assuming the trends in these graphs continue unchanged into the future, what would be your **hypothesis** about the future impact of China and the United States on global carbon dioxide emissions?

If current trends continue, the U.S. will gradually produce slightly less carbon dioxide emissions, while emissions in China increase dramatically.

🗣 What is the clearest way to explain the relationship between the three graphs? Practice explaining the graphs to a partner as if you’re a teacher and he or she is a student.

The average U.S. resident produces much more carbon dioxide emission than the average Chinese person, and U.S. per capita emissions are gradually decreasing. But the Chinese population is much larger and is growing faster than the U.S. population, and Chinese per capita emissions are also rising. If the average person in China were to cause as much carbon dioxide emission as the average person in the U.S., overall Chinese emissions would be vastly increased.

# Global warming: What should be done?



## DEBATING THE ISSUE

# Get ready...

Pick one of these positions (or create your own).

**A** Individual people should take responsibility for reversing the effects of global warming. It is not the government's fault that people drive SUVs and waste electricity. People should buy better cars and more efficient electrical appliances in order to slow down or stop global warming.

**B** The government should take responsibility for reversing the effects of global warming. Congress should pass laws making it illegal to drive SUVs and forcing companies to do everything they can to reduce greenhouse gas emissions. The government should also pay for research on alternative energy sources such as wind and solar power.

**C** Big companies should take responsibility for reversing the effects of global warming. They are the ones who are burning most of the fossil fuels and producing SUVs and other vehicles that harm the environment. Companies should develop alternate sources of energy and produce vehicles and appliances that do not contribute to greenhouse gasses.

**D** No one needs to take responsibility for global warming. Instead, we should be finding ways to adapt to the changes in our climate by preparing for big storms and moving houses and communities away from coastlines.

**E** \_\_\_\_\_  
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*When I re-read the text, it reminded me...*

*What makes you think that?*





Join the national conversation!



Word Generation - Unit 1.09

## Focus Words

adjustment | exposure | modify | monitor | transition



## WEEKLY PASSAGE

Parents and their teenage children have always fought about the way young people dress. Some schools are taking on the battle by making rules about what students may wear. Many school officials want to reduce skin **exposure** and ban t-shirts with offensive language. They argue that this type of clothing can be distracting to other students. Some schools want to make even greater **adjustments** to their dress codes by requiring school uniforms. Many parents are in favor of this **transition** to stricter dress code policies. They think requiring uniforms reduces the pressure students feel to look like their peers. Some parents also believe that uniforms contribute to a more structured classroom environment and help students focus on their schoolwork instead of worrying about how they look.

Some teenagers don't want the dress code to be **modified** because they like to express themselves through their clothing choices. They think it's not the school's business to **monitor** what they wear.

Other students who have been teased and criticized for wearing the “wrong thing” think stricter dress codes are a good idea.

What's your opinion? Should your school have a stricter dress code? How could a dress code have an impact on a school's culture?

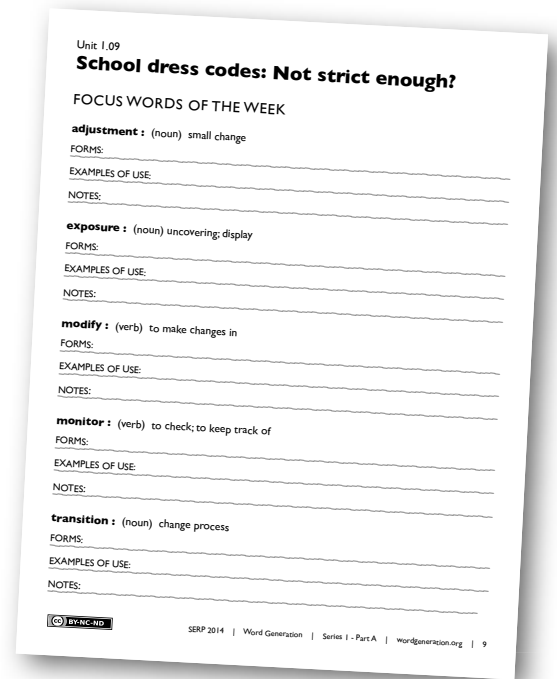
### TEACHER

#### Discussion Questions:

Why do some school officials want to reduce skin exposure and offensive language on clothing?

- ▶ What are some reasons why parents might want a transition to stricter dress code policies such as requiring school uniforms?
- ▶ Why don't some teenagers want the school to monitor what they wear?
- ▶ Why do some kids think a strict dress code is a good idea?
- ▶ Does having a strict dress code promote a positive school culture?

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## Unit 1.09

### WORD CHART FOR TEACHERS

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/Suffixes	
adjustment	(n.) – small change	adjustments	adjust (v.)	readjust adjusting adjusted adjusts adjustable	just justify
exposure	(n.) – uncovering; display	exposures	expose (v.)	exposing exposed exposes exposé expository exposition	depose impose
modify	(v.) – to make changes in	modifies modifying modified		modification modifier	
monitor	(v.) – to check; to keep track of	monitors monitoring monitored monitor (n.)			admonish premonition
transition	(n.) – change process	transitions		transition (v.) transitioned transitioning transitional transitive transient	transfer transit transform transcend transpose

# School dress codes: Not strict enough?



## PROBLEM OF THE WEEK

In the early 1990s, Long Beach Unified School District in California was in trouble. Students in its schools were violent. District-wide test scores were low. School officials thought about different ways to **modify** the schools. They wondered what kind of **adjustments** would work best to fix their district. In 1994 they began a **transition** to school uniforms. Test scores improved. Violence decreased. Within a few years, school crime had dropped by 80%.


The uniform policy at Long Beach Unified got a lot of media **exposure**. President Bill Clinton praised school uniforms in his 1996 State of the Union Address. Groups that **monitor** education also took notice. The Broad Foundation, for example, awarded the school \$2.14 million in prizes.

**Option 1:** In Long Beach, school crime fell by 80%. Which of the following means the same thing?

- A) School crime fell by four-fifths.
- B) School crime fell by three-quarters.
- C) School crime fell by two-thirds.
- D) School crime fell by half.

**Option 2:** Each year, the average American school spends approximately \$10,000 per student. How many students could the Broad Foundation's \$2.14 million prize fund for one year? (Hint: to solve this problem quickly, use exponents.)

Answer:  $2.14 \times 10^6 / 1 \times 10^4 = 2.14 \times 10^2$ , or 214 students

 **Discussion Question:** The media **exposure** of school uniforms in Long Beach sparked a debate. Some researchers pointed out that requiring uniforms was not the only **adjustment** made by the district. The uniforms were just one part of a larger **transition**. When the district **modified** the dress code, it also began to improve school security and closely **monitor** school attendance, among other changes. Did the uniforms fix the schools? How could we find out?

## School Dress Codes: Not Strict Enough?

### THINKING SCIENTIFICALLY

"I heard that our principal, Ms. Jackson, was meeting with some parents who want us all to **transition** from the current school dress code to wearing school uniforms," says Sumiko.

"Ew!" says Alyssa, "I hate that idea. We already have a dress code to keep skin **exposure** to a reasonable level—no shorts or skirts higher than our finger tips, no bare midriffs... that kind of thing. And we're not allowed to have swear words printed on our clothes. I'm okay with that, but we should still have some right to express ourselves in the way we dress."

"I don't know," says Ethan. "Deciding what to wear, and trying to figure out what's in and what's out, is a pain. Having to wear uniforms would take some **adjustment**, but it would make life simpler."










"I don't want my school to **monitor** every aspect of my life," says Mario. "What I wear should be up to me. I definitely don't want uniforms. And as for the dress code, there are bound to be cases where it's not clear whether a certain outfit fits the rules or not. It's not like a dress code can be as clear and objective as things are supposed to be in science, for example."

"Hmm. What do you mean?" asks Ms. Kahn. "Why don't you think a dress code can be objective?"

"Well, the rules are always going to be open to interpretation," says Mario. "Students might interpret them differently from the way the administrators who wrote the rules meant them."

"Can you give us some examples?" says Ms. Kahn. "And then the class can think about how to **modify** the rules to be more clear and objective."

→ Mario made up some examples of rules and the ways people might misinterpret them (by accident or on purpose). Below are three of his examples.

Existing rule	Rule violation	Intended solution	Unintended solution	Write a revised rule that makes the intended solution clearer
Dresses should not have spaghetti straps.				Example: Dresses should not be strapless. If they are sleeveless, they should have straps that are at least two inches wide.
The bottom hem of skirts or shorts must be below the fingertips.				Example: The bottom hem of skirts or shorts must be below the fingertips, and there should be no gap between the skirt/shorts and the shirt or blouse above it. That is to say, no bare midriffs.
Boys must wear a tie.				Example: Boys must wear a tie—in the conventional way, around their necks. (Obviously!)



# School dress codes: Not strict enough?



## DEBATING THE ISSUE

# Get ready...

Pick one of these positions (or create your own).

**A** Schools should have rules against clothing that exposes too much skin or contains offensive language. This type of clothing is distracting to students and teachers and can be harmful to student learning.

**B** Schools should require students to wear uniforms so that kids will not feel pressure to buy expensive clothes in order to look like their peers. Uniforms would keep kids from being teased and criticized for wearing the “wrong thing.”

**C** Schools should require students to wear uniforms because this will create a more structured classroom environment. Students who are dressed well will behave better, and this will allow everyone to focus on school work.

**D** Schools should not monitor what students wear because students should be free to express themselves through their clothing. Choosing their own clothing lets students be individuals.

**E** \_\_\_\_\_  
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### TEACHER

Whatever the debate format, ask students to use academically productive talk when arguing their positions. In particular, students should provide reasons and evidence to back up their assertions. It may be helpful to read these sample positions to illustrate some possibilities, but students should be encouraged to take their own positions about the issue at hand.

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Join the national conversation!

# STERIODS: SUBSTANCE ABUSE OR AN INNOCENT BOOST FOR ATHLETES?

Word Generation - Unit 1.10

## Focus Words

alter | compound | conflict | fundamental | substitute



## WEEKLY PASSAGE

After his success in the 1990s, the great homerun king, Barry Bonds, came under pressure. His fans began questioning whether he had been using steroids throughout his baseball career. Bonds has denied using any illegal chemical **compounds** to improve his athletic performance. However, a teammate wrote a book saying that Bonds used steroids to get stronger and bigger. Now that steroids have been declared illegal, many athletes are **substituting** new types of drugs that are hard to detect using traditional testing methods.

In 2001, Bonds reached a new record for the number of home runs in a single season. But sports writers and fans felt **conflicted** about recognizing the record. Did Bonds deserve recognition if he achieved his record with the help of drugs?

Many sports fans think steroid use is wrong. They believe that showing good sportsmanship is a **fundamental** part of athletic success. Some baseball greats like Babe Ruth, Roger Maris, and Mickey Mantle reached their home run records

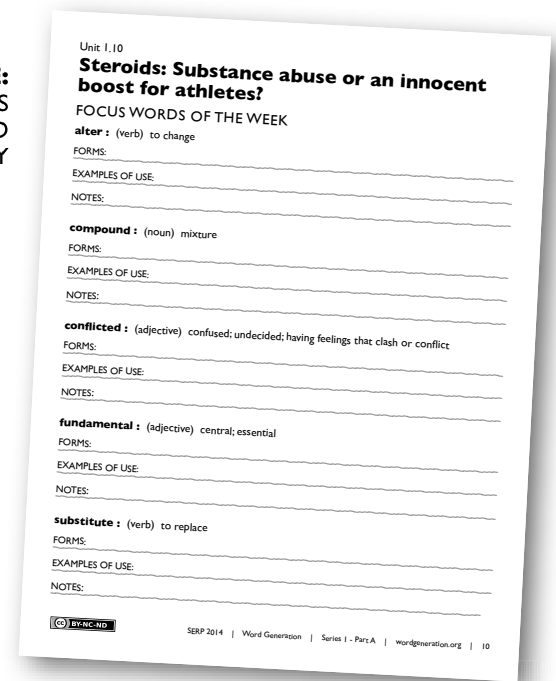
without drugs. If Bonds is eventually found guilty of steroid use, should his home run record be thrown out? Should the rules be **altered** to allow performance-enhancing drugs? What if athletes use vitamins to boost their health or pain relievers to help them play through injuries? Are some chemical compounds okay for athletes to use? How much chemical help is too much?

### TEACHER

#### Discussion Questions:

- ▶ Why do fans think Barry Bonds might have altered his body with chemical compounds to improve his athletic performance?
- ▶ Why are fans and sports writers conflicted about recognizing Barry Bonds' record for the number of home runs in a single season?
- ▶ Why do some athletes take steroids? Why are some of them now substituting new types of drugs?
- ▶ Should we focus on what an athlete achieves, or on how he achieves it? Is good sportsmanship a fundamental part of athletic success?
- ▶ If Bonds is guilty of steroid use, should his record be thrown out?

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## Unit 1.10

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compound	(n.) – mixture	compounds (pl.) compound (v.) compounds compounded compounding		compoundable	component expound impound position postpone
conflicted	(adj.) – confused; undecided; having feelings that clash or conflict	conflict (n.) conflict (v.)		conflictual	afflict inflict
fundamental	(adj.) – central; essential; basic		fundament	fundamentally	foundation
substitute	(v.) – to replace	substitutes substituted substituting substitute (n.) substitute (adj.)		substitutable substitution	constitute institute restitution destitute statue



# Steroids: Substance abuse or an innocent boost for athletes?



## PROBLEM OF THE WEEK

Barry Bonds holds Major League Baseball's record for career home runs. Many people have **conflicted** feelings about this fact. On one hand, Bonds is a great athlete and the record is a historic accomplishment. On the other hand, Bonds has been accused of using chemical **compounds** to illegally **alter** his body. This kind of chemical abuse goes against **fundamental** sports ideals, like sportsmanship and fair play. Before Bonds, Hank Aaron held the home run record. He was a role model to other athletes as well as one of the best players of all time. Some people think Barry Bonds is a poor **substitute** for Hank Aaron.

*Here are the all-time, top five career home-run hitters:*

Barry Bonds	762
Hank Aaron	755
Babe Ruth	714
Willie Mays	660
Ken Griffey, Jr.	630

**Option 1:** What percentage more home runs did Barry Bonds hit than Hank Aaron?

- A) 5% more
- B) 2% more
- C) 12% more

D) less than 1% more

**Option 2:** A physicist at Tufts University estimated that steroids could help a person hit 50% more home runs. Let's assume he is right. If a player hit 762 home runs on steroids, how many home runs would he have hit without the 50% increase that steroids provide? (For example, we're assuming a person who hit 15 home runs on steroids would have hit just 10 home runs without steroids. Ten, increased by 50%, becomes 15.)

Answer: 508

**Discussion Question:** Steroids **alter** the body in a **fundamental** way, by increasing muscle mass. Are they responsible for baseball's recent record-breaking performances? The list of great players caught up in the **conflict** over steroids is growing. Batting greats Jose Conseco and Mark McGwire have both admitted to using illegal **compounds**. Should Major League Baseball try to **substitute** clean players for the ones who built their bulk with the help of steroids? Or should we accept that steroids were part of this era, and focus on the future?

# Steroids: Substance Abuse or an Innocent Boost for Athletes?



## THINKING SCIENTIFICALLY

“It seems like there’s always some **conflict** over new performance-enhancing drug in sports,” says Michael. “If you stop players from using one chemical compound, they just **substitute** another. Maybe it would be simpler if everyone just decided players can use whatever chemicals they want.”

“No way!” says Chris. “That would change the whole idea of athletic competition in a **fundamental** way. Using drugs is cheating. And if we stopped thinking of it as cheating, it would put pressure on all athletes to keep up by using drugs that might have unsafe side effects.”

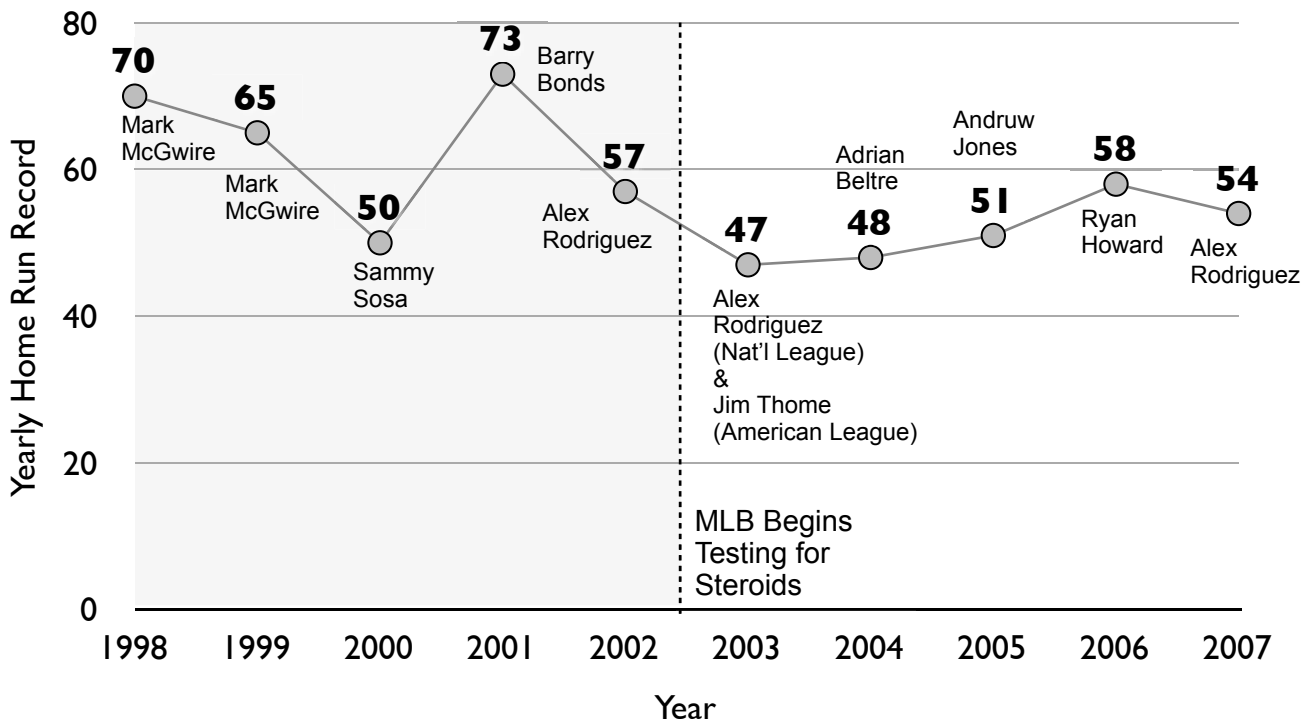
“I don’t know,” says Michael. “Do you really think drugs like steroids make a big difference in baseball, for example? I mean, just having bigger muscles doesn’t mean you’re going to be coordinated enough to hit better.”

“Steroids might not **alter** your coordination,” says Kyra, “but strength obviously plays a role in baseball. If two batters are equally coordinated, the stronger one should get more home runs.”

“Can you prove that?” asks Michael. “I mean, as long as steroids aren’t allowed, it’s hard to compare batters with steroids to batters without steroids.”

“That’s an interesting problem,” says Ms. Kahn. “Can you think of a way to find some data that might be relevant?”

➔ Michael, Chris, and Kyra did some research and learned that Major League Baseball started testing players for steroid use in 2003. They figured that with testing, illegal steroid use might have dropped abruptly in 2003. They decided to compare the average yearly home run records in the five years before testing to the average yearly home run records in the five years after testing began.



What was the average annual home run record in the five years before steroid testing started?

$$(70 + 65 + 50 + 73 + 57) \div 5 = 63$$

What was the average annual home run record the first five years after steroid testing started?

$$(47 + 48 + 51 + 58 + 54) \div 5 = 51.6$$

What do you think these data suggest about the effect of steroids on batting? Explain, and make sure you state your evidence.

There was a significant drop in the average seasonal home run record after steroid testing began. It seems plausible that this means batters were using steroids before, and that it helped their performance; but that they stopped using steroids when the risk of getting caught increased. (Looking at averages like this doesn’t prove, by itself, that any one player used steroids.)

# Steroids: Substance abuse or an innocent boost for athletes?



## DEBATING THE ISSUE

### Get ready...

Pick one of these positions (or create your own).

**A** An athlete's records should be thrown out if he uses any chemical compounds to help him play the game, even pain relievers.

**B** Athletes should be allowed to use pain relievers if necessary, but should not be allowed to use any drugs that will give them an advantage over other players.

**C** Athletes should be allowed to use steroids and other compounds to improve their performance, as long as they are honest about what they have taken.

**D** An athlete's records should not be thrown out if he uses steroids, because what is important is what he accomplished, not how he did it.

**E** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### TEACHER

Whatever the debate format, ask students to use academically productive talk when arguing their positions. In particular, students should provide reasons and evidence to back up their assertions. It may be helpful to read these sample positions to illustrate some possibilities, but students should be encouraged to take their own positions about the issue at hand.

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*that's similar to what I think too...*

*When I re-read the text, it reminded me...*

*What makes you think that?*



Join the national conversation!



Word Generation - Unit 1.11

## Focus Words

diversity | enhance | migration | presume | reveal



## WEEKLY PASSAGE

Mummies are very old dead human bodies that still have flesh on their bones. Some cultures have a tradition of making mummies when people die. For example, ancient Egyptians preserved the bodies of dead kings and queens because they thought this would ensure a good afterlife.

In recent years, mummies that were created naturally have been discovered all over the world. One found in the Alps appears to have been accidentally frozen in a glacier. He is known as the Iceman and is **presumed** by scientists to be over 5000 years old!

We can learn a lot about human history from studying mummies. They can **reveal** clues about what people ate, the tools they made, what they wore, and how they lived and died. They can also help to **enhance** archaeologists' understanding of human **migration** patterns. Scientific tests have provided information about where the Iceman might have traveled in his lifetime.

There is a **diversity** of perspectives about what to do with mummies when they are encountered. Should they be removed and examined, or should they be left where they are? Some think a mummy should stay in the country where it was first identified. Others believe it should go to the museum or university best equipped to study and protect it. Still others believe that removing a mummy from its burial place dishonors the dead.

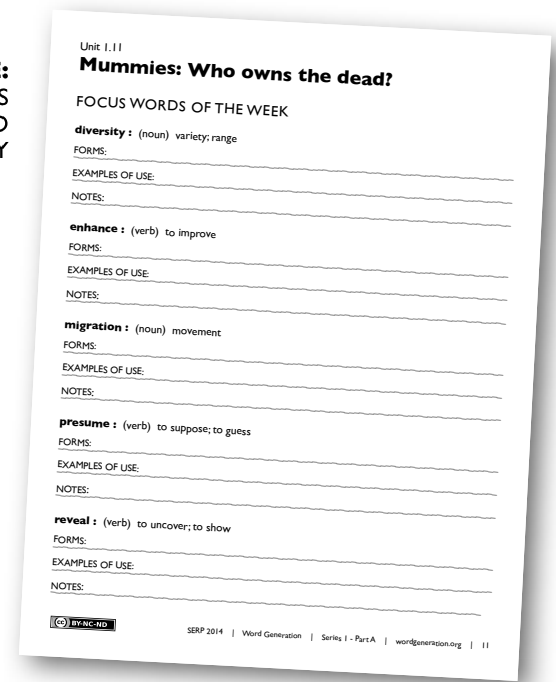
What do you think?

### TEACHER

Discussion Questions:

- ▶ What is a mummy?
- ▶ Why did the ancient Egyptians make mummies when people died?
- ▶ What can we learn from studying mummies?
- ▶ Who is the Iceman?
- ▶ What should be done with mummies when they are found?

**PLEASE NOTE:**  
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## Unit 1.11

### WORD CHART FOR TEACHERS

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/ Suffixes	
diversity	(n.) – variety; range	diversities	diverse	diversify	diverge divergent
enhance	(v.) – to improve	enhances enhancing enhanced		enhancement	
migration	(n.) – movement from one place to another	migrations migrate (v.) migrates migrating migrated		migrant migratory immigrate emigrate	
presume	(v.) – to suppose; to guess	presumes presuming presumed		presumption presumably presumptuous presumptive	resume consume assume
reveal	(v.) – to uncover; to show; to expose	reveals revealing revealed		revealer revelatory revelation	veil

# Mummies: Who owns the dead?



## PROBLEM OF THE WEEK

When hikers first found the Iceman, they **presumed** that the body was fresh. Subsequent scientific study **revealed** that he had died over 5,000 years earlier.

Studies of the Iceman's body and clothing have **enhanced** our idea of what life was like long ago. Researchers learned about the **diversity** of his diet. Inside his stomach they found meat, grain, roots, and fruit. Researchers who study human **migration** were particularly interested in the Iceman's shoes. His shoes were sturdy and good for walking.

**Option 1:** The Iceman died about 5,300 years ago. Which letter represents the time frame of his death?



A) A


**B) B**

C) C

D) D

**Option 2:** Evidence from the Iceman's teeth and bones suggest that he spent his life in a region that measures 37 miles across. An average person can walk at a rate of 3.5 miles per hour. How long would it take to walk from one end of the Iceman's domain to the other?

**Answer:** about 10.57 hours, or about 10 hours 34 minutes

 **Discussion Question:** When a modern person dies, we **presume** that the family has rights to the body. Many families want bodies disposed of quickly and respectfully. Although some people offer their bodies for scientific study, it is illegal to use a person's body in this way without their consent. When an ancient mummy is discovered, we think about the body very differently. We know that studying ancient remains may **reveal** new information that will **enhance** scientific knowledge. Ancient mummies may tell us new things about the **diversity** of human experience: where and how people **migrated**, what they ate, and how they lived. Is treating ancient mummies as scientific objects a form of disrespect? Or is the value to science more important? Or, could we say that scientific study itself is a way of respecting our ancient ancestors?

## Mummies: Who Owns the Dead?

### THINKING SCIENTIFICALLY



The students in Ms. Kahn’s class are doing a unit on health, and Marian has become interested in epidemiology, the study of how diseases spread in populations. She is giving a report on a disease called Leishmaniasis (leesh-ma-NY-uh-sis).

“Leishmaniasis is a horrible disease that can cause big open sores on the body. It’s caused by a parasite that gets into humans and other mammals through the bite of sandflies. The worst form of the disease can cause fever and swollen livers and spleens. Sometimes it is deadly. The disease kills over 20,000 people a year. The disease is found in a **diversity** of locations, but scientists think it probably started long ago in Nubia, the part of East Africa that is now Sudan. Evidence for that theory is **enhanced** by a study of mummies. The disease is also found...”

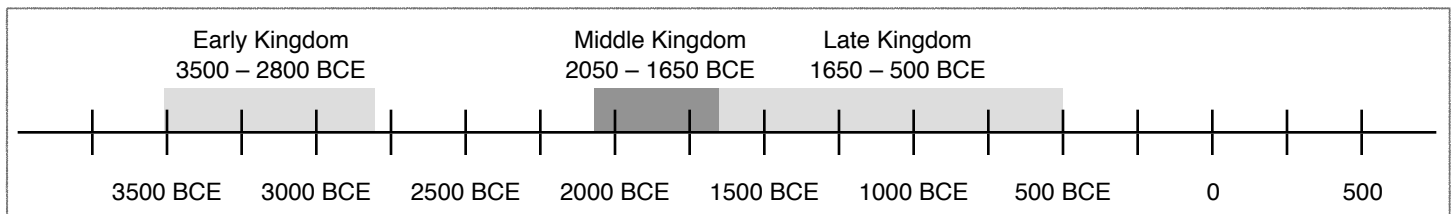
“Hold on,” interrupts Ethan. “Mummies?”

“Yeah, mummies,” says Marian. “So anyway, one of the best ways to prevent the spread of the disease is to use netting and insect repellent...”

“Back to the mummies,” Ethan insists. “How do mummies help scientists figure out where a disease came from?”

“Okay, okay,” says Marian, “let’s talk about the mummy angle. It’s almost like the mummies are witnesses, and they provide clues that **reveal** where the disease was at different times.”

→ Marian shows her classmates a timeline and tells them they are going to think through a question using scientific reasoning.



Scientists studied mummies from Egypt to learn more about *Leishmaniasis donovani*, the most dangerous form of the germ. They looked at Egyptian mummies dating from between 3500 and 2800 BCE. (in the period of the “Early Kingdom”); from between 2050 and 1650 BCE (in the “Middle Kingdom”); and from between 1650 and 500 BCE (in the “Late Kingdom”). Interestingly, the scientists found DNA evidence of *L. donovani* only in mummies from the Middle Kingdom. Since the Middle Kingdom was a time when Egypt and Nubia had lots of contact, and people **migrated** back and forth, the scientists concluded that the disease was connected to Ancient Nubia, the land south of Egypt.

This raises some questions:

→ Did Egyptians catch the disease from Nubians?

**X** NO. The disease is not contagious from person to person.

→ Did the sandflies that infect people once live in Egypt?

**X** NO. The environment in Egypt was never a good habitat for the sandflies.

SO... How do you **presume** the Egyptians became infected?

It seems likely that some Egyptians who traveled to Nubia were bitten and infected by the sandflies that lived there. Some of these infected Egyptians survived at least long enough to make it back home before they died and were mummified. But since the sandflies couldn’t live easily in Egypt, and the disease is spread by the sandflies, Egyptians stopped catching Leishmaniasis when they stopped traveling to Nubia.



# Mummies: Who owns the dead?



## DEBATING THE ISSUE

### Get ready...

Pick one of these positions (or create your own).

**A** Mummies should be left where they are. Moving them dishonors the dead.

**B** Mummies should be moved to a university where scientists can study what they reveal about the past.

**C** Mummies should be moved to a museum where people can come to see them and enhance their knowledge about the past.

**D** Mummies can be moved as long as they do not leave the country in which they are found.

**E** \_\_\_\_\_  
\_\_\_\_\_  
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#### TEACHER

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*that's similar to what I think too...*

*When I re-read the text, it reminded me...*

*What makes you think that?*



Join the national conversation!



Word Generation - Unit 1.12

## Focus Words

acknowledge | incidence | incorporate | initiative | transport



## WEEKLY PASSAGE

Many young people now **acknowledge** that eating too much junk food is not good for their health. They realize that soda, chips, and candy have little nutritional value. They know that these foods have too much sugar, salt, fat and refined starches. Yet they continue to eat junk food regularly.

Many also admit that they do not **incorporate** enough exercise into their daily routines. There is a higher **incidence** of type 2 diabetes among youth in recent years. This has been linked to rising obesity rates. Diabetes is a disease in which either the body's insulin levels are too low or the body does not respond to the insulin level that is present. The digestive system breaks down food to make glucose, which provides the body's energy. Insulin is an important hormone that helps the body utilize glucose. Insulin is needed to **transport** glucose to muscles and other tissues of the body.

Despite the link between diabetes and weight, some think that schools should keep selling soda and snacks. They argue that students should have a

choice about what they eat. Selling snacks also generates money for schools. Other people think that schools make junk food too accessible. They believe that schools should cooperate with health professionals on **initiatives** aimed at changing kids' eating and fitness habits. For example, schools could fill snack machines with more nutritious foods.

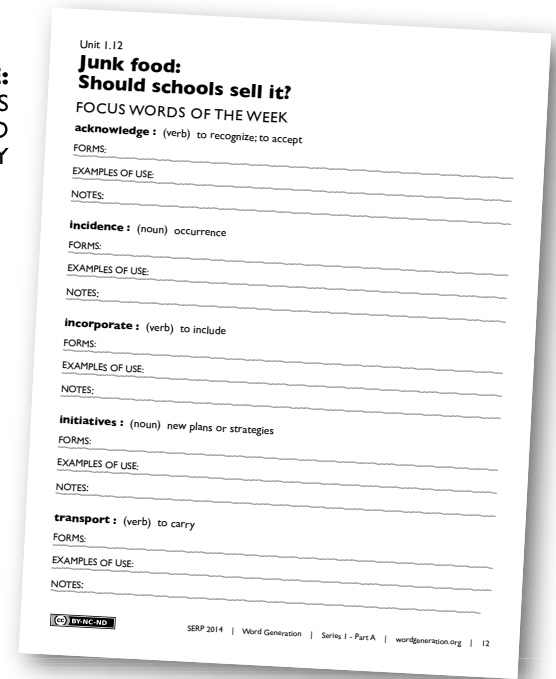
Should schools sell the snacks students want, or do they have a responsibility to promote healthy habits?

### TEACHER

#### Discussion Questions:

- ▶ What are some reasons students acknowledge that eating too much junk food is bad for their health?
- ▶ What is diabetes? Why has there been a higher incidence of this disease among young people in recent years?
- ▶ Why do some kids think schools should continue to sell junk food?
- ▶ Why do some people support initiatives aimed at helping kids eat healthier foods in school?
- ▶ Should schools sell junk food to kids?

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## Unit 1.12

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Word	Meaning	Forms			Related Words
		Inflectional	Basic Word Classes	Prefixes/Suffixes	
acknowledge	(v.) – to recognize; to accept	acknowledges acknowledging acknowledged	know	acknowledgement	knowledge
incidence	(n.) – occurrence	incidences (pl.)		coincidence incidental incidentally incident coincide	
incorporate	(v.) – to include	incorporates incorporating incorporated	corpus	incorporation incorporative corporate corporation	corporeal
initiatives	(n.) – new plans or strategies	initiative (sing.)	initiate	initiation	initial initially
transport	(v.) – to carry	transports transporting transported transport (n.)		transportable transportation	portable deport deport import comportment

# Junk food: Should schools sell it?



## PROBLEM OF THE WEEK

As the **incidence** of Type 2 diabetes climbs, researchers are doing more and more studies on good nutrition. Food companies try to **incorporate** findings from these studies so that consumers will continue to buy their products.

Frito-Lay is a company that makes Doritos, Cheetos, and other snack foods. These snacks are tasty, cheap, and easy to **transport**. Frito-Lay **acknowledges** that many of its foods are high in fat and sodium. Over the years, it has sponsored different **initiatives** to make its food healthier. One fat-cutting initiative led the company to develop Baked Lay's potato chips.

Here is some nutritional information about Baked Lay's chips, Classic Lay's chips, and a fresh apple.

	Lay's Classic Potato Chips	Lay's Baked Potato Chips	Apple
<b>Serving Size</b>	1 oz.	1 oz.	1
<b>Calories</b>	150	120	116
<b>Fat</b>	10 g	2 g	0 g
<b>Sodium</b>	180 mg	180 mg	2 mg

**Option 1:** The American Heart Association recommends that Americans eat a maximum of 1500 mg of sodium each day. What percentage of a person's daily sodium intake is in one bag of Lay's Baked Potato Chips?

- A) 6%
- B) 8%
- C) 10%
- D) 12%**

**Option 2:** A large apple weighs about 8 ounces. There are 16 ounces in a pound. Based on this information, how many pounds of apples would you have to eat to equal the sodium in one serving of Baked Lay's?

Answer: 45 pounds

**Discussion Question:** People like bagged snacks because they are cheap, easy to store, and easy to **transport**. However, the high **incidence** of illnesses caused by unhealthy diets has become a national worry. Many different health **initiatives** call for kids to snack on fresh fruits and vegetables. Schools **acknowledge** that fresh fruits and vegetables are healthy, but they are expensive. How could your school encourage all students to eat fresh fruit each day? **Incorporate** what you know about day-to-day life in the classroom and the lunchroom. What would work best for your school?

# Junk Food: Should Schools Sell It?

## THINKING SCIENTIFICALLY



“Given the **incidence** of obesity and overweight among young people, I don’t understand why our school sells junk food to students,” says Brianna.

“The vending machines raise money to help maintain the athletic facilities, **transport** teams to games and stuff like that,” says Anthony. “So while I **acknowledge** that junk food can be unhealthy, I think there can be an indirect benefit to students’ health when the sale of junk food helps fund school athletics.”

“Seriously?” says Brianna. “That makes about as much sense as selling fire-starting licenses to arsonists in order to fund the fire department!”

Anthony laughs. “Well,” he says, “it’s not like anyone is forcing students to buy and eat junk food. The nutritional information is printed right there on the packaging, so people know what they’re getting.”

“Fair enough,” says Brianna, “except that most people probably don’t read that stuff, and wouldn’t understand it if they did.”

“People should take more **initiative** to learn about what they’re eating and take care of their own health,” says Anthony. “I would rather **incorporate** more nutrition education into our science class than have more rules about how the school is allowed to raise money for sports and other good programs.”

“Maybe you two could help the class learn to interpret the nutrition labels on food,” says Mr. Seemy.

→ Brianna and Anthony brought in this portion of a nutrition label from a bag of Lay’s Classic® potato chips, and posed some questions:

These nutritional statistics are for a serving of 1 ounce of potato chips—about 15 chips. If you eat 2 ounces of chips, how many calories would you consume?

$$2(160) = 320 \text{ calories}$$

Fat contains about 9 calories per gram. How many calories from fat are in one serving?

$$9(10) = 90$$

Carbohydrates contain about 4 calories per gram. How many calories from carbohydrates are in one serving?

$$4(15) = 60$$

Protein contains about 4 calories per gram. How many calories from protein are in one serving?

$$4(2) = 8$$

Nutrition Facts	
Serving Size 1 oz (28g/About 15 chips)	
Servings Per Container 10	
Amount per serving	
<b>Calories 160</b>	<b>Calories from Fat 90</b>
% Daily Value*	
<b>Total Fat 10g</b>	<b>16%</b>
Saturated Fat 1.5g	<b>8%</b>
Trans Fat 0g	
<b>Cholesterol 0mg</b>	<b>0%</b>
<b>Sodium 170mg</b>	<b>7%</b>
<b>Potassium 350mg</b>	<b>10%</b>
<b>Total Carbohydrate 15g</b>	<b>5%</b>
Dietary Fiber 1g	<b>5%</b>
Sugars less than 1g	
<b>Protein 2g</b>	
*Percent Daily Values are based on a 2,000 calorie per day diet. Your daily values may be higher or lower depending on your calorie needs.	

It’s typically recommended that 20-35% of the total calories in your diet should come from fat. What percentage of the calories in these potato chips comes from fat?

$$(90/160)100 = \text{about } 56\%$$

The calculation gives 56.25%, but the calorie counts are not really precise enough to give us confidence in the quarter percent. You don’t need to get into the details of significant figures with your students here.

Twenty servings of these potato chips would supply 100% of the daily recommended fiber. Would this be a good way to get all your fiber? Why or why not?

No, it would be a *terrible* way to get all your fiber. You would be taking in far too much fat and sodium, both of which are harmful in large quantities.

What do the approximate number of calories in fat, carbohydrates, and protein add up to? Is this close to the total calories listed for one serving?

$$90 + 60 + 8 = 158$$

158 is close to 160, so the calories add up.

# Junk food: Should schools sell it?



## DEBATING THE ISSUE

# Get ready...

Pick one of these positions (or create your own).

**A** Schools should not sell junk food to kids or allow it on campus at all. The increase of the incidence of obesity and diabetes in kids is a major health problem.

**B** Schools should sell junk food to kids. They should acknowledge that junk food is what kids like best and allow students to make their own choices about what to eat.

**C** Schools should sell junk food to kids, but also incorporate healthy alternatives into the menu. They should also teach kids about nutrition.

**D** Schools should sell junk food to kids on special occasions or allow students to bring it in themselves sometimes. Junk food should be a treat and not an everyday thing.

**E** \_\_\_\_\_  
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\_\_\_\_\_

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